COLONY OF MAURITIUS

Annual Report

OF THE

Department of Agriculture

for the year 1953

[PRICE: R. 1]

PRINTED AND PUBLISHED BY
J. ELIEL FELIX, GOVERNMENT PRINTER,
PORT LOUIS, MAURITIUS
NOVEMBER 1954

COMMONWEALTH MYCOLOGICAL INSTITUTE
25 JAN 1955

No. 37 of 1954

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Policy

Agricultural policy may be briefly defined as the utilization of the island's land resources, whether in public or private ownership, to the best advantage in the interests of all its inhabitants.

In contributing to the achievement of this objective, the Department has attached particular importance to the following matters :—

(*a*) The continued prosperity and efficiency of the sugar industry ;

(*b*) Development of other suitable export crops, particularly tea ;

(*c*) Increased output of and greater efficiency in the production of the perishable and protective foodstuffs, including milk, vegetables and fruit ;

(*d*) increased and more efficient production of other foodstuffs, ~~including~~ in so far as the economic limitations will allow.

There were two important developments during the year : the setting up of the Mauritius Sugar Industry Research Institute and of the Board of Agriculture, Natural Resources and Fisheries.

In recent years it has proved extremely difficult to maintain the volume and quality of sugarcane research work owing to the scarcity of scientists and the limitations on salaries, conditions of service and expenditure necessarily imposed by public service control. The new organisation, which replaces the Sugarcane Research Station of the Department, is financed by the sugar industry and administered by a Board representative of different sections of the industry, with the addition of one Government member. The Director of Agriculture was appointed as representative of Government on the Board.

The Colony owes a very great debt to the old Sugarcane Research Station, but the time had come for change and it is to be expected that, with the resources the Institute can command, research will be pursued even more vigorously in the future than in the past.

The Ordinance setting up the Board of Agriculture, Fisheries and Natural Resources was enacted in July, but did not come into effect until 1st January, 1954. The functions of the Board are : to advise on all matters of general policy relating to agriculture, fisheries and the utilization and preservation of natural resources ; to exercise such powers for the utilization and preservation of natural resources as may be conferred on it by law ; and to direct and co-ordinate the work of committees appointed by the Board. The Board will be a central organisation representative of every section of the island's agriculture. It supersedes ten Boards and committees.

The Committee appointed to review the question of policy regarding Crown Lands (other than the Forest Lands) and the coastal belt of *Pas Géométriques* completed its report which was under consideration by Government at the end of the year.

The Sugar Industry

For the seventh year in succession Mauritius escaped any serious harmful effect from cyclones. Early rapid growth of sugarcane was favoured by heavy rains in December 1952, but during the following months of the growing season rainfall was slightly under normal, though sufficient to produce a good crop. June, July and August were very unfavourable for the ripening of sugarcane ; rainfall was exceptionally high and sunshine deficient. Weather conditions were, however, favourable during the second half of the crop season. As a result of these conditions, tonnage of sugarcane in the field was very high and sucrose content of the cane very low.

In spite of the low sucrose content a record crop was reaped. The tonnage of cane harvested was 4,642,740 metric tons, an increase of 13·4 per cent on 1952, and the sugar produced was about 512,000 metric tons, 9·5 per cent more than in 1952. The average yield of cane per acre over the whole island was about 27·7 metric tons, or 2·5 tons more than in the preceding year, and the sugar produced per acre was slightly over 3 metric tons, another record figure. The one disappointing feature of the season was the poor sucrose content of the cane which was only 13·0 per cent, the lowest figure obtained since 1939.

The output of labour was more satisfactory than during the previous year and more regular daily supplies of cane brought up the average working hours of the mills from 18·6 per day in 1952 to 19·2 in 1953. At the same time the average crushing rate per hour was increased from 63·3 to 65·5 tons.

The sugar industry now employs five officers to collect statistics concerning labour requirements of each sugar estate in order to help in improving distribution of labour. It is yet too early to say to what extent this organisation will benefit the industry, but it is believed that the improvement in the labour output during the year was due, at least partly, to its efforts.

Excessive rain interfered with the supply of cane to the factories at the beginning of the crop, but on the whole the work went on smoothly and the results obtained were very satisfactory. Sugar extraction was 11·03 as compared with 11·43 in 1952. Sucrose extracted per cent sucrose in cane was slightly lower than in the previous years, this being due to the higher crushing rate. Crushing began on 15th June and by 31st July the 27 factories were in full operation. The average number of crushing days amounted to 134,–5·5 per cent more than in the previous year, a very satisfactory performance when it is considered that 13·4 per cent more canes were manipulated. The last factory finished crushing on 28th December.

At the beginning of the year there was a change in the arrangements for marketing Commonweath sugar. The guarantee given by the United Kingdom Ministry of Food to purchase all available export surplus production from Commonwealth producers at an annually agreed price came to an end. A new agreement, valid until the end of 1960, which may be extended at yearly intervals, was reached. Under this agreement Commonwealth producers will limit their annual exports. The quotas of each producing country are divided into a negotiated price quota, and a further quota which the United Kingdom could reasonably be expected to absorb in competition with world sugars. The export quota for Mauritius has been fixed at 470,000 long tons, and the negotiated price quota at 335,000 long tons, increased to 351,000 long tons for as long as the New Zealand Government undertakes, as at present, to purchase its sugar requirements from the Commonweath. The negotiated price for our sugar for 1954 was fixed in November 1953 at £ 41 per long ton

C.I.F. London (at pre-war rate of freight), a reduction of £ 1.6.8 per ton on the price of the previous year. The reduction is due to a decrease in the index for supplies, particularly a fall in the cost of sugar bags and fertilizers. The index for wages and salaries remained unchanged.

The available balance of the 1953 crop for sale on the open market is being exported to the United Kingdom and Canada. The year 1952 marked the first year of surplus sugar since pre-war times and in 1953 production again exceeded consumption. This caused the world price of sugar to fall during the year to its lowest post-war figure.

Mauritius has not yet completed the task of modernising its factories so as to increase efficiency and output. A sum of 123 million rupees (£ 9,225,000) has been spent over the years 1946–52 on rehabilitation of the factories, but more capital expenditure will be necesssary if the crop is to be harvested in 100–105 days when the sucrose content of the cane is at its highest. The deterioration in the world sugar market is consequently causing anxiety to Mauritius producers and they have therefore welcomed the new International Sugar Agreement reached at the London Conferenee in July 1953 which is to come into force on the 1st of January 1954, The objectives of this agreement are to assure supplies of sugar to importing countries and markets for sugar to exporting Countries at equitable and stable prices, to increase the consumption of sugar throughout the world, and to maintain the purchasing power in world markets of countries of areas whose economics are largely dependent upon the production or export of sugar by providing adequate returns to producers and making it possible to maintain fair standards of labour conditions and wages. The International Agreement safeguards the provisions of the Commonwealth Agreement.

The position regarding bags has eased considerably and no difficulty was experienced in obtaining the supply required for the 1953 crop. The cost of imported bags dropped from Rs, 29.52 (£ 2.4.3d) per ton of sugar in 1952 to Rs. 16.40 (£ 1-4.7d) in 1953, but as under the " tripartite agreement " the price of local bags cannot vary by more than 10 per cent from one year to the next, the average price paid for bags in 1953 amounted to Rs. 20.42 (£1. 10. 8d) per ton of sugar as compared with Rs. 26. 10 (£ 1. 19. 2d) in 1952. It should be noted that a certain proportion of second-hand bags is used and that when sugar is shipped in bulk the same bags are used several times.

Bulk shipment of sugar is being continued and about 150,000 tons of the 1953 production will be shipped in this way. The present method of transporting sugar in bags storing the bags in Port Louis, carrying them to the ships in lighters and emptying them by hand in the ship's hold, is tedious and offers little financial advantage. The bulk handling of raw sugars without the use of bags is practised in Hawaii, Puerto Rico, British West Indies, Louisiana and elsewhere and if bulk shipment is to become a permanent feature in Mauritius the possibility of transporting sugar in bulk from the factories to Port Louis, and of having a modern port installation for loading ships direct from sugar silos, will have to be considered.

There was a serious drop in alcohol production during the year owing to slack demand on the export market. Out of 10 distilleries, only five were active. The output was 3,507,615 litres of which 2,118,522 litres were exported. Alcohol is at present exported in drums : this is a costly method of transport and the possibility of exporting in bulk is under consideration. A second company has been formed for the export of molasses in bulk and two more storage tanks have been constructed at the docks. Exports during the year amounted to 81,392 tons.

Manufacture of yeast from distillery residues has been discontinued but the Engineering Division of the Department continued to prepare tablets from food yeast powder which was obtained from South Africa. Over 28 million tablets were made during the year, mainly for use in hospitals and schools. A final decision on the proposal to erect a plant for the manufacture of food yeast from molasses had not been reached by the end of the year.

Mr. M. F. Reid and Dr. F. Madsen of the Pulp and Paper Research Company Limited, London, visited Mauritius in February to investigate the possibility of installing in the colony a pulp or pulp and paper mill, using sugarcane bagasse as raw material. Their report, which was received late in the year, is being studied.

Prior to the crop, Canadian refiners complained that they had experienced dificulty in refining our raw sugars. At the request of the sugar industry the Engineering Division of the Department studied the matter and the problem now appears to be approaching a solution.

The Central Board has now been in existence for fourteen years and during that time it has done valuable work in bringing about better understanding and confidence between millers and planters. In 1953 the Board held no fewer than thirty meetings, more than half the number being devoted to matters connected with the assessment of sugar to planters. Following the assumption of duty of the Accountant to the Board it has been possible to proceed more actively with the enquiry into production costs of planters and of millers. The Board considers that possession of precise figures of costs of production is essential for dealing promptly with cases of protest against assessments of planters' sugars and for deciding future policy.

The Sugarcane Research Station

The Station continued its programme of cane-breeding, research and investigation until the end of August, 1953, when it was absorbed in the new Sugar Industry Research Institute.

Breeding work was concentrated mainly on the production of early maturing types and varieties suited to the wetter regions and resistant to Chlorotic streak disease. Three varieties imported from Barbados, which successfully completed their trials, were added to the list of canes which may be grown in Mauritius, and a limited distribution of planting material was made. Three promising new canes bred at the station are under consideration for release.

The Botany Division continued to work on important problems of weed control in cane fields and also carried out an investigation into the effects of herbicides on food crops.

Experiments on the application of lime to cane lands were harvested in second and fourth ratoons. An application of 3 tons at planting gave an average response of one ton of cane per arpent, but the response was lower in ratoons and the application of lime appeared to have a deleterious effect on the sugar content of the cane. The trials of powdered basalt at Hermitage were harvested in fifth ratoons. Once more the treated plots showed a big response. The total response to one application of powdered basalt at a rate of 182 tons, applied at planting, now amounts to 34·1 tons of cane per arpent over six crops.

At the end of August the Station was taken over by the Sugar Industry Research Institute, under agreement with Government. The staff of the Station, with the exception of one officer who elected to remain in the direct service of Government, were seconded to the new organisation and arrangements were made for the use of lands and buildings and the transfer of equipment.

The extension service for small cane planters formerly attached to the Research Station, will continue to be operated as a direct Government Service as part of the Agricultural Division of the Department.

The work of the Sugarcane Research Station for the year under review is not published in this Report; it will be given in detail in the first full annual report of the Mauritius Sugar Industry Research Institute which will be published early in 1955.

The Mauritius Chamber of Agriculture

Mention should be made of an important event which took place during the year. The Mauritius Chamber of Agriculture celebrated its centenary on the 16th November. In a "Golden Book" published to mark the occasion, the wide activities of the Chanber are defined as follows :—

> "The Chamber is the nerve-centre of the agricultural and industrial life of the Colony and has first hand knowledge of all the problems affecting the interests of agriculture and agricultural activities. Its task is to do everything in its power to help solve these problems, both in the technical and economic spheres, to safeguard and promote the interests of agriculture and to represent the agricultural community in its relations with other institutions in Mauritius and abroad".

Officers of the Department wrote 10 Chapters for the "Golden Book" of the centenary.

College of Agriculture

The College of Agriculture, created in 1925 to replace the "School of Agriculture" has in the past been financed by a specially levied cess on sugar exported fron the Colony each year. At the end of August, with the new Agreement regarding the Sugar Industry Research Institute, this agreement came to an end, and the College became an integral part of the Department of Agriculture of which it has in effect been a division since its creation.

The College offers a three-year course for its Diploma in Tropical Agriculture. Students are trained in the various aspects of tropical agriculture with special reference to cane cultivation and sugar technology. Holders of the Diploma are equipped to occupy responsible posts in the various branches of the sugar industry, as Factory Overseers, House Chemists or Field Overseers, as well as in the other branches of Mauritian agriculture.

Facilities offered to students also include an essentially practical course of one year in Tropical Agriculture, suitable for supervisory field staff in the industry. In January 1954 a short course in sugar analysis will be started : this is intended to provide training for young men intending to take up employment as Assistant House Sugar Chemists. The work of improving and re-equipping the laboratories is still in progress : a workshop has been erected and is being equipped to provide practical engineering training. It is expected that the College will have been completely modernised before the end of 1954.

The total number of students in 1953 was 46, distributed as follows :—

Diploma course	29
Tropical Agriculture and Cane Cultivation ...	5
Part-time	12

At the annual examinations held in April 1953, seven students were awarded the Pass Diploma and two the Honours Diploma. Six students completed the 2nd year and nine the 1st year of the Diploma course.

The City and Guilds of London Institute examinations in sugar manufacture were also held in April. Ten candidates, all College Students, were successful, eight obtaining 1st class honours. One student obtained first prize, and was awarded the Institute's silver medal.

Fibre

There appears to have been some deterioration in the position of the industry during the year, owing to the general trend of falling prices for fibre. Because of this, the parties concerned in the "tripartite agreement" concerning the sale of locally-made bags did not agree to the extension of the agreement for another year. The maximum run of the agreement will now be five years, instead of six, unless one of the contracting parties calls for further annual curtailments prior to 15th December in any year. The deterioration in the position also affected the taking of loans by fibre producers. Out of a sum of one and a half million rupees (£ 112,500) placed at the disposal of fibre producers to improve their factories and increase their plantations, not more than one sixth had been borrowed by the end of the year.

The enlargement of the Sack Factory was completed during the year but the ancillary building programme, including the enlargement of the fibre store, the construction of workers' quarters and the canteen, was still in progress at the end of the year. The factory handled 1,197 tons of fibre during the year, as compared with 1,263 tons in 1952. It produced 1,203, 754 bags of 80 kilos capacity—about 60,000 more than the previous year—35,200 yards of filter cloth and other fabrics, and 7 tons of yarn for rope making.

The factory will come into full operation in 1954, but there has already been a marked improvement in the process of manufacture, the number of bags obtained per ton of raw fibre now being about 1,050 as compared with 970 prior to the introduction of new methods of manufacture. These include a more liberal use of softening oil. Still better results are expected as from the beginning of 1954 when loose or loosely packed fibre, instead of hard pressed fibre will be processed.

There were no major changes on the field side of the industry. Thirty-nine decorticating plants operated during the year, producing a total of 2,059 tons of fibre, a decrease of 35 tons from the previous year's production. It is estimated that the area under cultivation comprises about 3,000 acres of regular plantations and 13,000 acres of wild growing plants.

The price of Mauritius fibre on the world market is liable to frequent fluctuations. It sustained a sharp fall in 1953. Only 155 tons of fibre—in the form of cuttings and tows—were exported and the average price obtained was Rs 490 (£ 36.15.0) per ton.

The results obtained from the trials planted at Richelieu in 1950, show at this stage that Furcraea thrives best when planted at a spacing of 5x5 feet and that the growing of *Furcraea* in association with "Acacia" *Leucaena glauca* is beneficial to the crop. New trials of *Furcraea* have been planted with a view to determining the effects of planting distance, intercropping and the yield of the two varieties, Malgache and Creole.

An experimental fibre decortication station has been set up at Richelieu to enable experiments to be made on a commercial and industrial scale. The cost of labour is an important item when fibre is extracted by "hand raspadors" which requires skilled labour. It has long been felt that in order to bring down cost of production an automatic machine should be designed which will permit the production of best quality fibre, high output and low industrial loss. There was a renewed impulse during the year towards the production of such a machine. Four new types were tried and, though each of them possesses interesting features, it is not yet possible to say whether the problem is capable of early solution.

Tests were carried out on the different types of decorticators in use on the island in order to compare their relative merits. Experiments on the retting of aloe fibre gave interesting results ; the best synthetic detergent for this purpose seems to be Shell Dromus Oil B.

Tea

There was again a small increase in the area under tea which is now about 2,585 acres. Permits to plant a further 95 acres were issued during the year. Most of this is grown by large planters, but there are 317 peasent growers who cultivate a total of 653 acres, or 2·06 acres on the average.

The tea is made in five factories, two of which are modern and well equipped. Two others have been almost completely rebuilt on modern lines but are not yet fully equipped, and work on the renovation of the fifth is proceeding. As yet only one of the factories produces in quantity tea of a quality suitable for export.

Production also increased, for the eighth consecutive year, and amounted to 907,804 English pounds of made tea, which is again a record for Mauritius. Of this production, 76,755 lbs were exported, mainly to London with small quantities to Madagascar and South Africa, 113,600 lbs of tea were imported during the year, mainly from Ceylon.

Average yields remain low, in the neighbourhood of 400 lbs of made tea per acre, and this, in conjunction with relatively high labour costs, results in high costs of production per pound of tea and retards the development of an export industry. Labour is in short supply in the tea areas and the practice of collecting workers by bus and lorry from the population Centres and transporting them each day continued. Some progress was however made in building housing for workers to make labour available on the estates.

Conditions in the highlands of Mauritius are very suitable for tea and much higher yields, combined with quality, can be attained, as the Tea Experiment Station is now beginning to demonstrate. The first-planted fields on the Station came nto bearing in 1953, at only two and a half years from planting, and the difference between the yields of the ocal jat, although specially selected and the high jat tea imported from Malaya were very striking. The Malayan tea yielded at a rate of 695 lbs of made tea per acre

while the local jat, planted and treated in exactly the same way, gave only 482 lbs per acre. It is expected that the Malayan jat will give yields of at least 1,000 lbs of made tea per acre, with fine plucking, when it reaches full bearing.

The area under tea at the Experiment Station is now nearly fifty acres. Demonstrations of plantation management, showing methods of establishment and the use of drains, terraces, windbreaks and leguminous green manure crops are given there regularly. All applicants for permits to plant tea are required to attend these demonstrations before a permit is granted.

The experiment on the pegging down of the branches of young plants has proved very successful and resulted in earlier bearing. The practice is now being generally adopted. Work on vegetative propagation continues.

In addition to the Experimental Station, Government is establishing a tea plantation at Midlands. This plantation will be run on commercial lines to provide a demonstration of the possibilities of tea on a sufficiently convincing scale. Planting started in 1952 when 20 acres were established. This was extended to 63 acres in 1953 and a further area of 100 acres was cleared and prepared for the 1954 planting. It is intended to plant a total of ~~500~~ 100 acres. Seed of a high Indian jat obtained from Nyasaland is being used. It is hoped that with this jat, and under the warmer and more favourable conditions at Midlands, even higher yields will be obtained than at the Experimental Station. The original planting is making very good progress and should be in bearing next year.

The Tea Committee held eleven meetings during the year and dealt with many matters including protection of the industry, encouragement of export, organised marketing ; improvement of the factories and the packing and blending of tea for the local market.

Tobacco

The amount of tobacco which growers are allowed to produce is fixed each year by the Tobacco Board, an officially constituted body on which sit representatives of the various interests concerned. The Board also buys, handles and sells the whole of the tobacco produced. Practically all the tobacco is used for the manufacture of local cigarettes. Cheap cigarettes are made of 100 per cent local leaf while the better brands contain a certain proportion of imported Virginian tobacco.

The area of tobacco planted under permit was 763.95 acres in 1953 ; 605 acres were under the variety Amarello and the remainder under Virginian varieties. A total crop of 495,599 kilos of cured leaf was reaped. The amounts of leaf used for manufacture were : local leaf 390,941 kilos, imported leaf 151,630 kilos, a total of 542,571 kilos. It is estimated that owing to unfavourable climatic conditions there will be a shortfall of over 50,000 kilos on the amount of 565,000 kilos of leaf allocated to growers for the 1953–54 crop.

All sales of tobacco were made to the British American Tobacco Co. (Mauritius) Ltd., with the exception of abou 396 kilo sold to the Health Department for the inmates of the Mental Hospital. Producers received on the average Rs. 3.68 (£ 0. 5. 6d.) per kilo of flue-cured Amarello, Rs. 3.92 (£ 0. 5. 10½d) per kilo of Virginian flue-cured and Rs 2.91 (£ 0. 4. 4½d) per kilo of air-cured leaf.

Further explorations of possible export markets were made with no success. The Tobacco Board opened negociations with the Department of Commerce in Australia and a sample consignment of tobacco was sent to that country. Manufacturers there (as in the United Kingdom) have shown interest only in the top grades of the Virginian varieties.

The need of a new warehouse to meet present requirements has long been felt. A new modern building, the foundation stone of which was laid by His Excellency the Governor in October, 1953, is now under construction at Plaine Lauzun. It is expected that the work will be completed towards the end of 1954.

Part of the work of the Tobacco Experimental Station is now carried out at Pamplemousses, a district more typical than Richelieu of the present tobacco-growing areas. The work of the station included production of seed and seedlings for growers and variety trials of Amarello and Virginian varieties. The South African and Indian strains proved highly susceptible to black shank disease but the Virginian Yellow-Special variety although also susceptible to the disease, appears to hold some promise of good performance under local conditions. Manurial trials were also carried out.

Food crops

The Food Production Board continued its efforts to promote the production of food crops. Extensive work concerning practical field demonstration on pest and disease control and the running of small scale fertiliser demonstration plots on planters' lands were carried out during the year. The agricultural mechanical unit has been fully active ; some 1,200 acres were worked, including 500 acres of new land. The table below which is condensed from reports of the Food Production Board, gives the total area* planted to maize, manioc (cassava), potatoes, sweet potatoes, arouille (taro), groundnuts and rice, and the total weight of these crops reaped in the last five seasons :—

Season	*Area of food crops (Arpents)* *acres*	*Total production (metric tons)*
1948–49	17,325 (18,018)	19,673
1949–50	13,180 (13,707)	15,558
1950–51	8,852 (9,208)	14,469
1951–52	8,966 (9,325)	15,075
1952–53	8,333 (8,691)	17'371

Last season's decrease of some 600 arpents as compared with the 1951–52 season. was mainly caused by the diverting of still more lands to sugarcane. There was a slight drop n the production of maize, but the output of each of the other foodcrops was greater than in the previous season. This may be attributed to the favourable weather conditions which prevailed during the early part of the season, Weather conditions were, however, not so satisfactory during the second half of the season and excessive rain caused damage to certain food crops. Potatoes suffered particularly and there was a severe shortage of that commodity towards the end of the year owing to bacterial wilt.

*These figures represent *effective* acreages. The actual area in use is less (about 5,900 acres), as two or more crops are often grown on the same land during the year.

In spite of the continued acute shortage of staff in the Agricultural Division, important developments concerning buildings, equipment and expansion, of field work have taken place at the five experimental stations. Valuable work has been performed regarding food production, introduction and propagation ofplants, and production of vegetable seeds. Preparatory work has been carried out for testing the performance of pasture and fodder plants and experiments were continued with silage-making. The gardens under the Division's control were maintainecl in satisfactory conditions.

Livestock

During 1953 the staff of the Livestock Division was increased by 5 field officers to cope with the increasing demand for assistance from small breeders, mainly in connection with artificial insemination and sterility control of milk cows. In 1952, the number of milk cows artificially inseminated was under 2,000 ; in 1953 it rose to 5,000. The total number of cases attended to in 1953 amounted to more than 12,000, as against 7,000 the year before.

These figures illustrate the popularity of the service amongst cow owners.

Some progress was also made in the direction of improved feeding of dairy cows. Feed concentrates prepared and sold by the Engineering Division of the Department, were distributed through the Animal Husbandry Service to retail stores in the main cow-keeping centres, and their use and value explained to the cow-keepers. The response was fairly encouraging. In the last months of the year more than 25 tons of concentrates were bought by small cow-keepers.

Bucket feeding of calves is also making progress, with excellent results both for cows and calves. Numbers of very good calves are now to be seen in cow-sheds throughout the island.

In order to stimulate further interest in improved husbandry, field competitions for cow-keepers are being organised. These include classes for milk production ; products of artificial insemination, and general husbandry. Judging of the first competitions will not be completed until early next year, but the number of entries has been very encouraging.

Breeding work was continued at the Palmar Station on the east coast of the Island. A herd of selected Creole milk animals is being built up there and considerable progress was made during the year both in erecting buildings and stocking the herd. The local milk cow, known as the Creole, is a remarkable animal imported from Europe in the forgotten past. It is very well suited to local conditions, thoroughly acclimatised and adapted and, as feeding tests and experience at the Government Dairy have shown, capable of high and sustained milk yields. The purpose of the herd which is being built up at Palmar is to improve the stock by selective breeding and the production of progeny-tested bulls for artificial insemination.

The Government Dairy at Curepipe, which serves for experimental purposes and also supplies milk to Child Welfare Centres, produced over 27,000 gallons of milk in 1953, the highest figure yet reached. This herd has suffered badly from contagious abortion in the past ; but in 1953, as in the previous year, there was not a single case of abortion. This is the result of the policy carried out over the last three years, of routine agglutination testing, segregation and slaughter of reactors, and methodical use of S19 vaccine.

Land Settlement

There are three settlement schemes, situated at Terre Rouge, Petit Sable and Richelieu. In each there are three types of holdings designed to meet the needs and resources of different classes of cultivators : equipped holdings with house and cow-shed, 4 to 5 acres in extent ; bare-land holdings of about 2 acres ; allotments of $\frac{1}{4}$ to $\frac{1}{2}$ acre. The holdings are run on a mixed farming system, the crops being sugarcane, vegetables and other food crops and livestock.

At Petit Sable, where the scheme is virtually completed and in its second year of successful cropping, there are 10 equipped holdings, 10 bare-land holdings, 42 allotments and 100 onion plots, this crop being well suited to the region and very remunerative. A considerable part of the area, too steep for cropping, is being placed under protective cover which will provide additional fodder for the settlers' livestock.

The main scheme is at Terre Rouge, where 20 equipped holdings and 83 bare-land holdings have been established. This is a dry area requiring irrigation, but provision of water has been delayed. Nevertheless, tenants have already started cropping and have been fortunate in having unusually good rains during the year.

At Richelieu a start has been made with 10 equipped holdings, 8 bare-land holdings and 10 allotments.

A fourth project has been added recently : a dairy small holding scheme on Crown Land at Palmar, consisting initially of 10 holdings each of 12 acres designed to support at first four, and later six dairy cows. This project is in process of development.

Plant Pests and Diseases

A new parasite of the pink borer of sugarcane, introduced last year from Kenya is now well established. Its value as a controlling agent of its host will be difficult to assess, but there are signs that it will be considerable.

The introduction of parasites against the spotted borer of cane was continued, unfortunately without the appearance yet of successful results.

For the control of two of the major pests of the pigeon pea which, if less severely attacked, could find an important place in Mauritian peasant agriculture, a number of parasites were introduced, one of which has become established on *Etiella*.

The behaviour of the two principal insect predators which attack "*Herbe Condé*" continues to be carefully watched. The activity of the Conde seed destroying Chalcidoid, *Eurytoma*, was assessed, the results showing that the measure of control by this insect is very effective.

Chlorotic Streak is now becoming the principal disease of sugarcane in the upper and wetter parts of the Island and in other areas where drainage is defective. It is fortunate that a relatively simple and effective method of

treating cane cuttings prior to planting (immersion in water at 52°C for 20 minutes), is being adopted by a number of estates. It is very important that the insect vectors responsible for the spread of this disease should be known, and investigations with this object in view have been initiated by the Entomological Division.

Sclerospora disease of the sugarcane was identified for the first time as existing in the Colony. Its origin has not yet been traced, but it is not considered to be a new introduction. It is not expected to develop into a disease of economic importance.

During the year under review, the new rust of maize, *Puccinia polysora* which has swept so rapidly over Africa made its appearance in Mauritius and seriously reduced yields. This crop is not a major staple here, but is nevertheless of considerable importance in the inferior economy of the Island ; steps were taken at once to devise means of bringing the disease under control. Another disease affecting food crop production, namely bacterial wilt of potato was rather more prevalent than usual in 1953 owing to the exceptionally favourable conditions for its development brought about by the abnormally wet season which persisted for almost the whole of the year.

Rodrigues

It is well known that the teeming population of 15,000 which inhabits Rodrigues and cultivates its meagre soils lives mostly on the food crops raised on their little plots of land, often not above one acre in area. Last year, owing to the adverse weather conditions, the crops were poor and greater imports of rice and other foods had to be made. The cattle, however, benefited from the earlier and longer-drawn rains which extended the period of flushing of the grassland.

The work at the Agricultural Station proceeded on much the same lines as the previous year, but a number of demonstration plots were established in different parts of the Island, to show the cultivators the effects, in particular, of the application of fertilizers to their food crops. In the matter of soil and water conservation satisfactory progress was made.

Soil samples from the chief agricultural areas were sent to Mauritius for analysis. Compared with Mauritius soils, the Rodrigues soils contain less organic matter, less nitrogen and have a lower phosphate content ; their potash content was found to be normal.

The Chemical Division carried out analyses to assess the value of the deposits of guano which lie scattered in different localities at Rodrigues. Only one of these deposits, that at Flat Island, was found to have a phosphatic content of commercial value, varying between 19 and 23 per cent, but the total quantities are small and must be reserved for the improvement of the soils of Rodrigues itself.

W. Allan,

24th June, 1954. *Director of Agriculture.*

Staff of the Department of Agriculture

The senior posts in the Department are as follows :—

Director
Deputy Director
Deputy Director in charge of the Agricultural Division
Senior Agricultural Officers (3 posts)*
Senior Veterinary Officer
Veterinary Officer
Animal Husbandry Officer
Plant Pathologist
Sugar Technologist
Chemical Engineer
Registrar, Central Board
Accountant Central Board
Chief Chemist and Assistant Registrar Central Board
Entomologist
Associate Entomologist
Chemist, Agricultural Chemistry Division
Fisheries Officer
Tea Officer†
Land Settlement Officer†

There are 19 officers who are Assistant Heads of Divisions or of similar grade (including 4 Agricultural Officers), 44 officers of the grade of Scientific Assistant or its equivalent (including Agricultural Instructors), 30 Overseers or officers of similar grade, 23 members of the clerical staff and 19 Laboratory Attendants and Messengers.

In the Fisheries Branch there are 7 Inspectors of three grades and 52 Guards of two grades. The staff of the College of Agriculture consists of a Principal and Lecturer in Chemistry, three Lecturers and three Assistant Lecturers.

Staff Movement

The Deputy Director of Agriculture, Mr. N. Craig, left the Colony on 11th March, 1953, on leave prior to retirement.

Mr. J. R. Lagesse, Principal Agricultural College, left on European leave in January 1953, and returned on 6th October, 1953. During his absence Mr. R. Lincoln took charge of the Agricultural College.

Mr. D. N. Andrews was appointed Assistant Tea Officer and assumed duty on 8th February, 1953.

Mr. J. R. Sadler was appointed Accountant to the Central Board on three years' contract and assumed duty on 24th February, 1953.

Mr. R. Avice, Registrar of the Central Board, left the Colony on European leave on 17th March, 1953, and returned on 19th December, 1953. Mr. C. Mayer, Assistant Registrar, acted as Registrar during Mr Avice's absence.

Mr. R. Bouvet was appointed Veterinary Officer in the Veterinary Research Station and assumed duty on 13th March, 1953.

*Two posts vacant. One post included in Development and Welfare Estimates.
†Included in Development and Welfare Estimates

Mr. A. de Sornay, Plant Breeder, Sugarcane Research Station, was granted duty leave from 1st April to 20th June, 1953, to enable him to attend the Conference of the International Society of Sugarcane Technologists held in the West Indies.

Mr. S. Staub, Sugar Technologist, returned from overseas leave on 13th May, 1953. Mr. E. Limfat was appointed to act as Officer in Charge Engineering Division and Mr. R. Thelemaque Acting Sugar Technologist during Mr. Staub's absence.

Mr. A. Darné, Senior Veterinary Officer, left the Colony on overseas leave on 10th May, 1953 and returned on 21st December 1953. During his absence Mr. R. Bouvet acted as Senior Veterinary Officer.

Mr. A. Moutia, Associate Entomologist, was granted leave and left the Colony on 20th May, 1953.

Mr. F. O. Sprinks, Tea Officer, left Mauritius on 13th November, 1953 on leave prior to termination of contract. Mr. D. N. Andrews, Assistant Tea Officer, was appointed to act as Tea Officer.

Order of Appendices

Central Board Division
Agricultural Division
Tea Division
Land Settlement Division
Livestock Division :—
(*a*) Veterinary Section
(*b*) Animal Husbandry Section
Plant Pathology Division
Entomological Division
Chemical Division
Engineering Division
Legislation

Central Board Division

Composition of the Board for the year 1953

Chairman :—W. Allan, Esq., O.B.E. (Director of Agriculture)

Millers' representatives :—
F. North Coombes, Esqre.
E. Julienne, Espre.

Big Planters' representatives :—
A. N. Souchon, Esqre.
J. N. Roy, Esqre.

Small Planters' representatives :—
M. Burrenchobay, Esqre.
J. Chundunsingh, Esqre.

Mr Allan ceased to act as Chairman at the end of March and was replaced by Mr. E. Hugues.

The Registrar went on overseas leave in March.

The Weighbridge Inspector and Investigational Officer of the Board retired in May and was temporarily replaced by Mr. J. Marot, seconded for duty from the Sugarcane Research Station.

Meetings

The Board held 30 meetings during the year :—

3	meetings	relative to	applications for change of delimitation
11	,,	,,	protests against assessment of sugar ;
12	,,	,,	general business
4	,,	,,	appeals against decisions of the Board.

Registration of Cane Contracts

Ten thousand three hundred and thirty two (10,332) cane contracts were registered. The total number of contracts in force for the 1953 crop was 14,335 of which 12,924, referring to 19,633 planters, were on a provisional basis. The total number of planters was 21,035.

Permits to Middlemen

Fifty-one permits were granted during the year as compared with forty-nine in 1952. The tonnage supplied by individual middlemen varied between 1,000 and 20,000 tons.

Delimitation of Factory Areas

Sixteen applications for variation of boundaries were received. Only one request was granted.

Weighbridge Inspection

Control of cane weighbridges—One hundred and sixty five (165) weighbridges dealing with planters' canes were tested during the year. On first inspection 145 were found to be accurate. The 20 others were recommended for readjustment ; of these, 12 were found accurate at the second examination, 6 at the third examination, while 2 had to be examined a fourth time before the necessary certificate could be delivered. Seven (7) old weighbridges were replaced.

Surprise checks carried out at Weighbridges—Three hundred and thirty-one (331) surprise checks were carried out and 265 vehicles which had been previously weighed were re-weighed. In only one case the weight was found to be inaccurate. The weigher was prosecuted and fined.

Cane Testing

Seventeen temporary cane testers were trained and employed during the crop.

Eight thousand nine hundred and sixty (8,960) sucrose content tests were carried out on canes of 192 individual or group of planters supplying canes to 25 factories. Last year's figures were 6,903 and 162 respectively.

Assessment of Sugar

Following publication of assessment figures, seventeen Co-Operative Credit Societies, six planters and the Mauritius Planters' Association lodged protests.

Six millers also lodged protests, one subsequently withdrawing his objections.

Costs of Production

It was decided to endeavour to obtain complete details of costs of production of cane and sugar from all 27 millers, and of cane, from a representative selection of planters. Comprehensive questionnaires were drawn up and sent to the millers and to fifty planters early in May, a further 25 small planters being asked to answer the questionnaire in August.

Completed questionnaires had been received from 61 planters by the middle of November. Average costs of producing cane were compiled, the Island being divided into four climatic regions ; the planters being grouped according to tonnage of cane produced for the purpose. It is intended to double the number of planters taking part during the 1953–54 crop.

An effort was made to encourage the Cooperative Credit Societies to get their members to submit costs of production, but at the end of the year, nothing had been received from them.

Completed questionnaires had been received from 24 of the 27 millers by the end of the year, but there were considerable delays before receiving the answers. As a result, transport costs could not be made available by the end of the year.

C. Mayer,
Acting Registrar, Central Board.

Agricultural Division

1. Staff

The Division again worked at reduced strength throughout most of the year although the position improved a little towards December when Mr Robert Antoine, B.Sc. (Hons), A.R.C.S., Dip. Agric. Sci. (Cantab.) was appointed to one of the vacant posts of Senior Agricultural Officer on 8th December, 1953 and Mr C. M. Courtois was appointed Scientific Assistant on 3rd January, 1953 on transfer from the Entomological Division. On 21st March, 1953, Mr J. Duhamel returned from Rodrigues for reasons of ill-health. Mr L. Moorlee was posted to the Dependency to fill the vacancy, sailing on 27th August. Mr M. Morad assumed duty as Scientific Assistant (Foodcrops section) on 5th August. Mr J. H. Julien, Agricultural Officer, who had been studying horticulture in the United Kingdom, at the Essex Institute of Agriculture and at the National Institute of Agricultural Botany, Cambridge, returned to duty on 30th November.

On 16th October, the Extension Service of the Sugarcane Research Station was absorbed by the Agricultural Division, upon transfer of that Station to the Sugar Industry.

Overseer M. Bhurtun was retired from the Service on medical grounds on 1st June, and was replaced by Mr. O. Soophul.

From March, when Mr Norman Craig, O.B.E., Deputy Director of Agriculture, went on leave, prior to retirement, the writer was engaged at the Central Office of the Department on administrative duties, and Mr. E. Lesur, Agricultural Officer, took over the Division's administrative duties.

2. Experiment Stations

The past year has seen considerable development, mostly in regard to buildings, equipment and field preparation at all the experimental stations of the Division, now five in number and covering the complete range of conditions under which agriculture in its various forms is practised in the Colony.

(*a*) *Curepipe Experimental Station.*—(Altitude : 1,830 ft.; average rainfall : 125 ins.) New buildings for offices, store, equipment shed, and new quarters for the resident overseer were constructed. More land was cleared and prepared for testing the performance of a number of pasture and fodder species early in 1954. Plans were laid down to provide piped water for a future nursery and vegetable section, and for linking the Station with the adjoining Government Dairy.

(*b*) *Central Experiment Station. Reduit.*—(Altitude : 1,040 ft.; average rainfall : 63.5 ins.) The whole of the Station was cropped with various foodcrop species, vegetables, pasture and fodder species, sugarcane in rotation, pineapples, tobacco, groundnuts and small plots of a number of other plants. The new area was laid down to green cover pending the provision of irrigation water and to restore some uniformity after the hard soil-disturbing work required to clear the land of rocks by means of heavy mechanical equipment. The boundary wall was completed and now, at last, the Station is safe from depredations by the deer of the neighbouring forest.

(*c*) *Richelieu Experimental Station* —(Altitude : 200 ft.; average rainfall : 32 ins.) This Station, the largest of the five, is devoted mostly to tobacco, foodcrops, fibre and fodder crops. During the year under review, it has been the centre of great activity : new buildings were put up for offices, stores and equipment shed ; two quarters for the resident overseers were constructed ; a watchman's hut was begun. The construction of a workshop for the maintenance of the Division's increasing amount of mechanical equipment was also begun and should be completed by March, 1954, when the Division is due to absorb the Food Production Scheme.

In addition, a new reservoir over 100,000 cubic feet capacity was excavated by machine for the Tobacco section of the Station : its construction is due to be terminated within the course of the present financial year. Conjointly, the main irrigation supply canal which feeds this reservoir and serves the whole station, was reconstructed and lined with concrete where there was an earthen bottom before. By the end of 1954 the Station's water supply will have been put on a satisfactory and really useful basis.

A considerable section of the Station was deep-worked with heavy mechanical equipment. This essential clearing work, formerly inefficiently done by hand, proceeded according to schedule. It is due for completion in the next two years. The road system was considerably improved, old roads repaired and new ones opened. This also will take two years to complete.

In connection with road building, construction of irrigation canals and other works, it may be noted that the station received a stone crusher and granulator late in December. When installed, crushing its own stone requirements will greatly facilitate the work not only of the Station but of the Division as a whole, if only for road and canal maintenance.

Finally, steps were taken to bring electricity to the Station from Central Electricity Board's main supply which will be available early next year.

(*d*) *Barkly Experimental Station, Beau Bassin*—(Altitude : 750 feet ; Average rainfall : 45 ins.) The plans mentioned in last year's Annual Report for a new building to house offices, sales room, seed manipulating floors, seed store and small laboratory matured during the year. In the beautiful setting of this horticultural station, it was imperative to combine utility with beauty, and unquestionably the finest official building of recent years has emerged there. It was designed by the well-known Mauritian artist and architect, Max Boullé, and constructed in record time (23rd March to 17th September 1953) by Mr. Octave Chauveau.

New quarters in cement bricks were erected simultaneously for the junior resident overseer as well as a hut for the watchman. Another hut is now under construction which, with the new shed for the preparation of compost and a small reservoir in the area taken over in 1951, should complete the building programme of the Station which would thus have been adequately equipped, it is hoped, for many years to come.

The old corrugated iron sales room and Overseer's office has been transferred to another site and altered into a mess room for the labourers employed at Barkly.

(*e*) *Pamplemousses Experiment Station.*—(Altitude : 180 feet. Average rainfall : 50.5 inches.) The main feature of note was a re-apportionment of experimental land following the transfer of the Sugarcane Research Station to the Sugar Industry. Advantage has been taken of this to concentrate food crop and tobacco experiments, the main lines of work at Pamplemousses, within easier reach of headquarters, on Crown Land rather than on leased adjoining lands.

3. Gardens and Nurseries

The two gardens under the Division's control : the Royal Botanical Gardens at Pamplemousses and the small Telfair Garden, favourite site at Souillac for numerous annual charity bazaars, were maintained in satisfactory condition.

At the Royal Botanical Gardens four kiosks were rebuilt on a new pattern and of material defying the white ant and fungal rot, the roofs to harmonize with the setting being made of thatch as before. A new orchid house was erected, also with durable materials, to house the new collection of nearly 100 species of orchids which is becoming one of the main attractions of the Gardens.

An event of considerable interest, the celebration of its Centenary by the Mauritius Chamber of Agriculture, took place at the Royal Botanical Gardens on 16th November. On that occasion, a full-scale model of a primitive sugar factory such as had nearly disappeared a hundred years ago, when the Chamber was founded, erected by permission in a corner of the Gardens, was inaugurated by His Excellency the Governor. This is now attracting an increasing number of visitors.

After seven cyclone-free years, during which trees battered by the severe cyclone of 1945 have had time to heal their wounds, the Gardens are now at their loveliest. Their beauty has been enhanced of late years by the introduction of lawn mowers to replace scythes for the upkeep of the lawns.

Abercrombie Nursery was maintained as in the past for the convenience of the inhabitants of Long Mountain, the north of the Island and Flacq, as well as of Port Louis, who can obtain ornamental and fruit plants there at reasonable prices and at little personal inconvenience.

With the return from study leave of Mr. J. H. Julien, nursery work at Barkly, Pamplemousses and Abercrombie is in process of reorganisation and modernizing. It is anticipated that the local application of the latest nursery techniques will result in considerable benefit both to the Division and to the public.

4.—Plant Introduction and Plant Propagation

Among plants recently introduced the following deserve brief but special notice :—

(*a*) Foodcroops

Rice—Ten varieties were propagated for seed. These will go into plot trials in the next two years.

Sorghum—Five varieties from India.

Gram—Three varieties from India. Produced seeds at low altitudes.

Potato—Six varieties, two of which failed to grow; tubers of the four others were kept in cold storage for multiplication.

Wheat—Of 33 varieties received, chiefly from Kenya, only 5 grew to provide seeds.

Oats—Eleven varieties, all of which seeded well

(*b*) Vegetables

Several varieties of *garden peas*, *beans*, *cow peas*, *spinach*, &c. all of which with few exceptions grew well and produced seed for propagation next year.

(*c*) Fruits

Chesnut, *raspberry*, *peach* and *prune* varieties, *Malta orange*, *citrus* and *guava*. Three varieties of *mango* received by air from Martinique were grafted, all, unfortunately, failing to take. Cuttings of *Zizyphus jujuba* were received late in December from Reunion Island.

(*d*) Herbage and Fodder

Three varieties of *Lucerne* flowered but produced no seeds. Seven varieties of 3 species of *clovers* flowered, only one producing seeds. *Rhodes grass*, the common and giant types germinated well and were propagated. *Buffel grass*, *Brachiaria decumbens* and *Phalaris tuberosa* were also propagated.

(*e*) Ornamentals and Miscellaneous

Among the more interesting species the following may be mentioned : *Ligustrum aureum*, *Honckenya ficifolia*, *Lagerstroemia speciosa*, *Clorodendron speciosa*, *Epiphyllum* sp., *Buddleia variabilis*. *Gingko biloba*;, 2 *Rhododendron* varieties, *Virginia creeper*, *Pelargonium* (var. Paul Crample).

Seeds of many plant species were sent in exchange to numerous institutions and individuals in many parts of the world. Seeds of several timber species were supplied from the Royal Botanical Gardens to the Forest Department.

The following figures give the number of the more important fruit trees propagated during the year for sale to the public :—

Avocado (grafts)	132	Mango (budded)	91
Avocado (seedlings)	676	Mango (inarched)	456
Breadfruit	145	Loquat (grafts)	60
Coconut—Ceylon	291	Peach (grafts)	334
Coconut—Pemba	378	Citrus (seedlings all varieties)	9,067
Litchi (layers)	1,700		

5. Production of Vegetable Seeds

Under the Colony's Development and Welfare Scheme some funds were set aside for the furtherance of the production of vegetable seeds. The progress of this work began to be reflected in the 1952 figures of production, as shown below :—

	1950	*1951*	*1952*	*1953*
Kilos of seed produced	1,079	953	1,362	1,467

These quantities, for the small area of land available for this work, are very encouraging in spite of a fairly high cost of production. In this connection it is well to make it clear that an experimental station cannot and does not aim at profit making and cannot escape high costs. It tends to pave the way. In this particular case, the indirect benefit to the Colony which, unfortunately, cannot be assessed in terms of money, is unquestionably considerable. Market gardeners as well as amateurs are guaranteed pure seed of high germinating power and of acclimatized, high yielding, disease-resistant strains, which result in a fuller stand and a bigger crop in the field with a corresponding decrease in the cost of cultivation and a higher net return. Admittedly, there are good seeds imported from abroad, but many are insufficiently acclimatized for optimum yields under local conditions, while others are obtainable only from uncontrolled local sources.

6. Maize, Ground Nut and Potato

Space precludes a full report on the many trials with various crop plants carried out at the experimental stations. The results of these in a year or two may be embodied in a special publication. Brief reference will be made in this report only to maize, ground nut and potato.

(a) The different trials and plantations with *maize* in 1953 were all ruined through violent attacks of *Puccinia polysora* rust. Our plantations were useful in that they provided the Plant Pathologist with material to study the disease and also because special plots were laid down every month for further observations on the invasion of the disease when varying the times of planting. While the Plant Pathologist set about ordering resistant varieties from abroad, especially from Nigeria, the Agricultural Division examined hundreds of plants in a large field of local maize growing on a neighbouring estate, and selected a few of the apparently more resistant ears for propagation. This seed was sown as soon as possible later in the year and further selection carried out. The result of this work if successful—and there are encouraging signs of success at the time of writing—may well prove more quickly beneficial for purely local conditions, than attempts to breed new varieties by crossing imported strains with local ones.

(b) A number of interesting points arise from consideration of several trials carried with *ground nuts* during the year. First, the excellent growing conditions have been reflected in the generally high yields of nuts obtained with practically every variety under trial. Perhaps for the same reason, or because it had time to become fairly well acclimatized, variety *Uganda*—which was practically wiped out by wilt disease when first introduced some five years ago—yielded to the tune of 1,500 kilos of air-dried nuts under good conditions of cultivation and narrow spacement. As regards planting distance, very close planting—which is feasible in the small areas cultivated by hand by peasant growers—again gave the highest yields, thus confirming

previous findings. In addition, the application of a small amount of nitrogen at planting time was found to be advantageous. Planted at the best time of the season at close spacing (12 x 15 ins.), varieties *Tennesse*, *San Jose*, *Vigan Lupog and Valencia* gave practically the same high yields of 1,650 to 1,830 kilos of air-dried nuts per acre. Finally, in a variety trial carried out under good conditions at Pamplemousses, yields were as high as those quoted above for most varieties except Gambia. In that trial the percentage nuts coming out of the soil when lifting after forking as compared with "searching" for them in the ground with the hoe—which is very costly—brought out a very interesting fact. In the case of the local variety "*Cabris*" and of "*Spanish*," over 95 per cent of the nuts came up; with the other varieties not more than 53 per cent could be clean-lifted. This no doubt constitutes yet another reason for the continuing popularity of variety *Cabris*.

(*c*) With *potato* a number of variety trials involving comparisons of different planting distances, planting whole setts as compared with cut pieces, and varying the doses of fertilizers, gave generally encouraging results confirming previous findings and pointing to potatoes as the food crop *par excellence* for the special attention of the Agricultural Division. Yields at Richelieu varied according to varieties from 3·71 to 8·00 tons per acre. A small "look-see" late-planted trial at Curepipe gave very encouraging results but the yield is not recorded owing to the small size of the plot. The possibilities are great and the newly appointed Senior Agricultural Officer will devote much of his time to this crop in 1954 and following years with the object especially of finding the way to very high yields and to the best methods of conservation of the crop under local conditions.

7. Fodder and Ensilage

Propagation plots of the following species were established at the various stations for the supply of planting material: *Seteria Bua River*, *Paspalum paniculatum*, *Panicum Makarikari*, *Setaria Kazungula*, *Helinis minutiflora*, *Pennisetum purpureum* (Elephant or Napier grass), *Chloris Gayana* (Giant Rhodes grass), *Chloris Teso*, *Phalaris tuberosa*, *Cenchrus ciliaris* (Buffel grass), *Brachiaria decumbens*, *Ischaemum*, *aristatum* (Herbe d'Argent), *Paspalum notatum*, *Pennisetum clandestinum* (Kikuyu grass), *Akaroa Cocksfoot*, *Sorghum Sudanense*. A few species, including *Eremochloa ophiuroides* (Centipede grass), introduced from Uganda and *Tripsacum Laxum* (Guatemala grass), introduced from Trinidad, failed to germinate.

Experiments with silage continued. Another small silo of the same capacity but of somewhat different design from that constructed in 1952, was erected ten feet away from the first. A chopper and blower were installed between the two silos which could thus be filled mechanically, one with maize, the other with cane tops. The cane tops were shredded and in that condition occupied a larger volume for the same weight material as compared with chopped tops (known, in local parlance, as *macadams*). At the time of writing, the silos have not yet been emptied and figures for finished silage and costs of production cannot be given in this report. It seems possible, however, to prepare cane top silage in the region of Rs 70 per ton, including collecting, transport, filling of silo and emptying.

The value of "acacia", *Leucaena glauca*, as a protein-rich fodder whose value is not fully appreciated except by a number of cow keepers within easy reach of localities where the plant grows in wild abundance, is in the process of being determined. To that end experimental plots were laid down at Pamplemousses and Richelieu. The results obtained at Pamplemousses from the first plot, sown in 1950, are as follows :—

Year	*Yield of green fodder per acre (tons)*
1951 (6 cuts)	28·3
1952 (6 cuts)	21·8
1953 (7 cuts)	27·4

Yields of plots sown in 1952 vary between 15 and 25 tons green fodder per acre per year according to planting distance, height of cut and other factors under observation.

8. Fibre

Furcraea—Two new trials with Furcraea (*alœ*, *alæs*) were planted during the year on blackish soil type which shrinks and cracks heavily during the dry season. The first was planted in double rows at a planting distance of 6×2×2 feet ; the second (which compares *alœs creoles* with *alœs malgache*) was planted at 7×2×3 feet.

Seven of the trials laid down in 1950 were cut for the first time early in the year with the following results :—

Trial No.	*Type of Trial*	*Spacement*	*Weight of leaf cut per acre kgs*	*Yield dry fibre per acre kgs*	*Dry fibre % green leaf*
1/50	Spacing	12×3×2	7,550	98·2	1·30
2/50	Var : Richelieu	12×3×2	9,626	143·3	1·489
	Var : Sorez	,,	8,890	125·36	1·41
	Var : Terre Rouge ...	,,	7,036	97·7	1·388
3/50	Spacing	6×2×4	7,260	115·1	1·585
4/50	Spacing	8×2×4	8,350	99·7	1·585
5/50	Spacing	5×5	9,880	148·16	1·499
	do.	12×2×3	5,850	77·0	1.316
	do.	13×2×3	4,920	65·0	1·321
6/50	With acacia	9×3×3	6,220	87·0	1·315
	Without acacia	,,	3,360	44·3	1·318
7/50	With acacia	12×3×3	5,520	75·1	1·36
	Without acacia	,,	4,210	68·15	1·618

It would be rash to draw any conclusions from these figures at this stage and they are quoted for information only. General observations, however, point to the following : the twelve feet spacings between double rows are too wide : planting 5×5 feet at this early stage has the advantage but may not hold it throughout the whole crop cycle : growing Furcraea with "acacia" in the interrows to provide light shade and diminish competition with weeds appears advantageous.

Kenaf.—Some trials were also laid down with Kenaf (*Hibiscus cannabinus*) mainly to test the plant's behaviour in the first part of the Mauritian summer. A plot of Rozelle (*Hibiscus Sabdariffa*) was also laid down. Each of these trials contained three spacements, the drills being at intervals of 1, 2 and 3 feet. The results obtained are tabulated below and tend to show that the advantage lies with the closer planting :—

Date planted	*Spacement feet between drills*	*Date harvested*	*Yield dry fibre per acre Kgs*	*Fibre% green plant*
		HIBISCUS CANNABINUS (Kenaf)		
30. 7.52 ...	1	10.3.53	1,237	4·6
30. 7.52 ...	2	10.3.53	1,065	5·4
30. 7.52 ...	3	10.3.53	980	5·8
29. 8.52 ...	1	13.3.53	675	5·6
29. 8.52 ...	2	13.3.53	592	5·7
29. 8.52 ...	3	13.3.53	621	5·1
1.10.52 ...	1	14.3.53	450	5·3
1.10.52 ...	2	14.3.53	380	5·0
1.10.52 ...	3	14.3.53	530	5·0
26.12.52 ...	1	15.6.53	1,560	3·6
26.12.52 ...	2	15.6.53	415	5·5
26.12.52 ...	3	15.6.53	415	6·3
		HIBISCUS SABDARIFFA (Rozelle)		
11. 8.52 ...	1	5.5.53	1,621	6·2
11. 8.52 ...	2	5.5.53	924	5·0
11. 8.52 ...	3	5.5.53	1,242	6·0

New Zealand Hemp.—The climate of the lowlands is definitely too warm for New Zealand Hemp (*Phormium tenax*). The plant is growing better, without signs of disease but a little slowly, at the upland experimental station, Curepipe, where it is under observation.

9. Tobacco

Climatic conditions were generally favourable for good vegetative growth, the rainfall of 48·46 inches being 16·14 inches above the average (13 years) for Richelieu. It was well distributed from January to June, the main tobacco growing season, but exceptionally high in May. Temperature approximated very much to normal throughout the year.

Area.—The total area under tobacco this year was 14 acres as compared with 11·75 acres in 1952, being distributed over three of the Division's experimental stations, as follows : 9 acres at Richelieu, close on 4 acres at Pamplemousses and 1 acre at Reduit.

Amarello.—Amarello continuing to loom large in the Island's tobacco production, a considerable area was devoted to it at Richelieu, both for the production of seed and for experimental purposes. In one trial, nine strains were included. These are listed below. The South African and Indian strains proved highly susceptible to black shank disease, as the yields, calculated from the weight of the first four primings, showed :—

Strain	*Kgs/acre*
Station	754
Station (late flowering)	524
Choisy (1952)	722
Rivière du Rempart (1952)	715
Flacq (1952)	661
South Africa (1950)	137
India (White Amarello 1946)	65
India (White Amarello 1950)	254
Station (Amarello broad leaf)	754

This trial was duplicated on land which had probably never been under tobacco. Again the South African and Indian strains suffered severely from black shank. Similar effects were obtained with the plantation at Reduit where, in addition, an unusually severe attack of brown spot (Alternaria), intensified by the unusually wet nature of the early winter months, ruined what seemed to be otherwise a very promising crop.

Amarello was also planted at Pamplemousses—a district more favourable to the cultivation of tobacco than Richelieu and in which it has been decided to carry out part of the Station's annual experimental programme of work with tobacco—yields were very good and leaf generally of good quality.

Flue-cured Virginian Varieties.—A number of flue-cured Virginian varieties, including *Bonanza*, *Jamaica Wrapper* and *Yellow Special*, were planted in observation plots, on land which had not been under tobacco for very many years. All varieties did well, giving good yields and leaf of good colour. Frog-eye was evident but not in severe form. Very few plants died from black shank.

The variety *Yellow Special* appears to hold some promise of good performance under local conditions and more experimental work will be done with it in the next few years.

An interesting manurial trial was carried out both at Richelieu and Pamplemousses with *Bonanza*. Owing to the generally high incidence of black shank at Richelieu the use of pen manure at planting has been abandoned many years ago. The advantage, however, of such use under conditions prevailing at the Station, where the soil's content of organic matter is so low that it is reflected in very poor soil structure, is well worth further investigation. To this end a trial was laid down ; the various treatments and the yields obtained both at Richelieu and Pamplemousses, are tabulated below for ease of reference (the yields have been calculated from the weight of green leaf harvested :—

Treatment	*Richelieu*		*Stand at Mid-April*	*Pamplemousses*	
	kgs/acre			*kgs/acre*	
Control (no manure)	240	100	80·0	1175	100
5 tons pen manure	315	131	85·0	1370	116
10 tons pen manure	206	86	62·5	1426	121
2 tons goat manure	200	82	77·9	1323	112
2 tons goat+5 tons pen manure	262	109	83·3	1412	120

The stand at mid-April at Richelieu and the relative yields at both stations tend to show that, except for the heavier application, neither pen nor goat and pen manure. judiciously used, have had adverse effects. The low yields recorded at Richelieu were partly due to a sudden spell of heavy rain accompanied by severe localised gusts of northern wind which swept over the Station, breaking a number of plants and severely lodging the whole plantation with the result that the bottom half of the plants remained prostrate for the rest of the growth cycle and most of the bottom leaves were lost. Another factor which is being borne in mind as a possible cause of low yields is the deficiency of some trace element.

It is believed that a near approach to a proper soil-air-water equilibrium may be the answer, at least partially, to some of the problems confronting the tobacco grower at Richelieu, but mostly in connection with the improvement of field results through the reduction of black shank disease and the amelioration of leaf quality. With surface irrigation as previously practised, there may have been created around the plants conditions very favourable to the development of the disease. A trial was designed to throw some light on this problem. It involved for a start, planting on the flat and on ridges, of single and double rows. Strangely enough for Richelieu, the first time such a field trial is attempted, rainfall is unusually plentiful and well distributed and irrigation made virtually unnecessary. The trial will be repeated in next year's research programme.

Variety Selections —The Rg and flue-cured Virginian hybrids were planted with the parent varieties in mid-March. All the hybrids proved highly resistant to black shank, while the flue-cured Virginian parents suffered considerably from this disease. A number of plants were selected in each hybrid plot and back-crossed to the flue-cured Virginian parents. A considerable number of other varieties, including *White Burley*, *Western* (fire-cured) cigar and air-cured varieties were planted for selection work.

Rotations—At the Tobacco Station, sugarcane is grown as part of a fairly long rotation which also includes other crops like maize and ground nuts. Sugarcane which was usually planted immediately after tobacco will in future be planted in April–May, the tobacco being followed by a cover-crop like Velvet bean.

Potato was introduced last year in one field following early planted tobacco. Probably for the first time in potato-planting in Mauritius, the cultivation, from preparation of the land to, but exclusive of, lifting was performed mechanically; watering was done by sprinkler. A yield of nearly 6 tons per acre, which can undoubtedly be improved upon considerably, was obtained.

Equipment—The Richelieu Experimental Station where most of the work on tobacco is done, is in process of being better equipped than ever before. In addition to light tractors, the Station now boasts of adequate Sigmund sprinkler irrigation equipment to which a large addition of piping was made during the year. A proper bulking room and a new thatch-covered grading room sunk partially below soil level was constructed, and work was begun on the workshop mentioned earlier in this report.

Weed Control—A number of experiments were carried out under the supervision of Mr. E. Rochecouste, B.Sc., then of the Sugarcane Research Station, with the threefold object of determining :—

(*a*) The easiest and most effective means of destroying and controlling chiendent (*Cynodon Dactylon*), the most troublesome weed of the Station, which constantly reappears through irrigation-borne seeds.

(*b*) The control of other weeds growing between rows of sugarcane.

(*c*) The effect of the chemicals used on foodcrop plants cultivated in the interrows of sugarcane.

TCA has given very good results in the control of chiendent, proving superior in this respect to sodium chlorate : C.M.U., in post-emergence application had little effect on nut grass (*Cyperus rotundus*). Palormone and ialine, after weed emergence, gave good results on the interrows of cane. Methoxone and ialine, in varying doses in pre-emergence, affected foodcrop plants in varying degrees, potatoes and beans doing fairly well in spite of the applications of these herbicides.

10. Rodrigues

Staff.— Mr. J. Duhamel, Agricultural Officer, who arrived at Rodrigues on 29th July, 1952, returned to Mauritius on 19th March, 1953, on account of ill-health. Until replaced by Mr. L. Moorlee on 31st August, Mr. S. Bagwant, Agricultural Instructor, was in charge of the agricultural work in the Dependency.

General.—Although no cyclone visited Rodrigues and rainfall was more abundant than usual, excessive precipitation in January, April and May and shortage of water in February were detrimental to the plantations. The overall production of maize was much smaller than normal, while excessive vegetative growth of cassava and sweet potatoes resulted in less root formation. As a result greater imports of rice had to be made to feed the population.

The bean crop also suffered and onion plantations were washed away by the floods in May.

Climatic condition improved late in the year, favouring the early sowing of maize, preventing the pasturage from going dry, and keeping the cattle in better condition than usual. On 9th March, the annual livestock census was made, giving the following figures :—

	1951	*1952*	*1953*
Cattle	4,963	5,235	5,504
Sheep	3,180	3,842	4,080
Goats	5,016	4,837	3,956
Pigs	3,395	3,198	2,856

The drop in pig numbers was due to greater exports to Mauritius.

Experimental Station.—The Station was maintained in satisfactory condition. A new store, 24×12 feet was constructed. A cart on pneumatic tyres was made. A varied set of experiments with maize, manioc, sweet potatoes, yams, ground nuts, rice, beans and a number of other crop plants was carried out. The most interesting results were those obtained with maize when nitrogen was added as sulphate of ammonia. With phosphate also applied, the highest yield being 1,756 kilos of grain per acre as compared with 1,070 kilos without fertilizers.

Following these results intensive propaganda was made in favour of the use of fertilizers, especially nitrogen, and for the first time at Rodrigues, sulphate of ammonia was imported and retailed in the shops at Port Mathurin.

The Livestock at the Station was maintained, generally, in good health.

Tobacco.—The Rodriguan planter is not very keen on growing tobacco for export to Mauritius. The peasents prefer to grow their own strain of *Marzipatlan* and are averse to making changes in their methods of cultivation and curing.

Soil and Water Conservation.—The area of arable land protected by stone terracing along contours during the year was 153 acres. With nearly 600 acres done previously, the total area protected is now 753 acres. The walls are 2½ feet high by 3 feet wide at the base and 2½ feet at the top. The cost of this work, borne by Government, averages Rs. 0.34 (6.12d) per running foot of terrace bank.

As regards holding back storm water by damming up the streams, 123 small rough stone dams had been built up to January, 1952 all over the island. Of these, 75 resisted the April floods.

Demonstration and School Gardens.—Five demonstration plots, each ¼ acre in area, were laid out in various localities. but the heavy rains of April ruined three of them. On these plots the use of fertilizers, almost unknown in the dependency, is being demonstrated with growing interest on the part of the cultivators.

The School Gardens at Lataniers and La Ferme were regularly visited. Port Mathurin School, at last, has now got its own garden, although it is but a very small one.

11. Allotments

For the last year the Allotments Relief Scheme was administered by this Division. The departmental committee in charge of its affairs met regularly once a month. Three lessees voluntarily gave up their plots through inability to cultivate them properly owing to growing old age ; thirteen others were evicted for neglect of the land. All these vacancies were immediately filled by applicants on the waiting list.

With effect from 1st January, 1954, this Relief Scheme will be administered by the Public Assistance Department, the Agricultural Division giving technical assistance only in matters of crop cultivation and the raising of small stock.

12. Revenue

The revenue derived from sale of crops, plants and seeds from the various sections of the Division amounted to Rs. 45,026.11 during the Financial Year 1952–53, being made up as follows :—

	Rs.	c.
Sale of ornamental and useful plants	12,282	91
Sale of vegetable seeds	5,146	89
Sale of tobacco leaf	12,194	58
Sale of tobacco seedlings	685	75
Sale of canes	13,435	98
Sale of other produce	1,280	11
TOTAL ...	45,026	11

(£3,376.19s. 2d)

13. Publications

The following articles were published during the year :—

"Notes on the Cultivation and Propagation of the Avocado Pear in Mauritius" by J. H. Julien, in *Revue Agricole*, Vol. XXXII, No. 1, pp. 25–27.

Quelques aspects de notre industrie textile (Some aspects of the Mauritian Fibre Industry) by A. North Coombes, in *Revue Agricole*, Vol. XXXII No, 6, pp. 363–375.

Mr. A. North Coombes also wrote three chapters for the "Centenary Book" of the Chamber of Agriculture on the following subjects :—*Les autres cultures* (The Lesser Crops of Mauritius), "The Fibre Industry" and *L'Elevage* (Livestock in Mauritius).

14. Acknowledgement

Since the middle of March the writer has been engaged mostly on administrative duties in temporary replacement of Mr. Norman Craig, O.B.E., who is still on overseas leave prior to retirement. He has had but little time to give to the Agricultural Division which has for the most part been under the charge of Mr. E. Lesur, Agricultural Officer. Mr. J. H. Julien only resumed duty from study leave overseas in December, while Mr. R. Antoine joined the Division half-way through December, as one of the long-awaited Senior Agricultural Officers. At the same time, there has been a heavy programme of consolidation of the Division as an essential part of building it up for the work which lies ahead. These circumstances have taxed the energy and goodwill of all officers of the Division to a high degree, and they have responded well. In my name and in that of Mr. Lesur, I here lay down on record our appreciation of their loyal co-operation.

G. A. North Coombes,
Deputy Director of Agriculture.

Tea Division

General

For the eighth consecutive year, tea production increased and is again a record.

Staff

The Assistant Tea Officer Mr. D. N. Andrews, assumed duty on the 9th February.

The Superintendent of Tea Plantations, Mr. S. Mariette relinquished his post on the 30th June. Since then, the post has remained vacant, but it is hoped it will be filled early in 1954.

The Tea Officer, Mr. F. O. Sprinks, left the Colony on leave on the 13th of November.

Visits

The Tea Officer in the Company of Mr. Larcher visited Madagascar from the 25th June to the 1st of July, to study the prospects of exporting tea to Madagascar.

The Tea Officer, at the request of the Government of Reunion, visited Reunion from the 16th to the 22nd October to survey the prospects of establishing a tea industry there.

Weather

Rainfall was above average and only slightly less than the previous year. The winter months were very damp. October and November were dry months which caused production for these months to be below normal:—

	Rainfall			
	Crown Land Wooton		*Midlands*	
	Inches	*Wet days*	*Inches*	*Wet days*
1951	174·56	268	—	—
1952	159·21	286	102·18 (June–Dec.)	175
1953	156·94	282	187·81	303

Production

The total production of tea for the year 1953 was 907,804 English pounds of black tea and 1,473 English pounds of green tea' which is an increase of 24,454 lb of black tea and a decrease of 1,069 lb of green tea as compared to 1952. Climatic conditions were favourable during the first two quarters and this with the greater area coming into bearing are the main reasons for the increase in black tea.

PRODUCTION FOR THE FIVE TEA FACTORIES DURING THE LAST FOUR YEARS (IN ENGLISH LB.)

	1950	*1951*	*1952*	*1953*
Bois Chéri ...	335,447	379,035	400,484	417,558
Curepipe factory ...	231,764	252,477	257.663	274,922
Avenir St André ...	74,640	110,690	131,828	132,377
Pont Colville ...	64,618	66,868	74,673	67,786
Nouvelle France ...	42,724	32,090	18,702	15,161
	749,193	841,160	883,350	907,804
Green tea :—				
R. Aubeeluck ...	3,972	4,238	2,542	1,473

IMPORTS AND EXPORTS

Year	*Imports (English lb.)*	*Exports*
1950	86,849	47,986
1951	47,641	89,826
1952	94,822	16,035
1953	55,488* (118,245)	76,755

	English lb.
Imports from :—	
Ceylon	105,547
India	2,407
Hong Kong... ...	5,472
U. K.	181
	113.607
Exports to :—	
U. K.	63,810
South Africa	12,065
Madagascar	880
	76,755

Year	*Area under cultivation of tea* — *Permits issued*	*Area planted*
	Arpents	*Arpents*
Up to and including 1951	...3,073·79 (3,196·7 acres)	2,119·90 (2,204·6 acres)
1952	... 244·11 (253·8 ,,)	150·00 (156·0 ,,)
1953	... 91·00 (94·7 ,,)	106·30 (110·6 ,,)
Govt. Tea Experimental Station—C. L. Wooton 1950–53	... —	47·30 (49·2 ,,)
Govt. Tea Plantations Midlands 1952–53 ...	—	63·50 (66·04 ,,)
TOTAL ...	...3,408·90 (3,545·2 acres)	2,487·00 (2,586.44 ,,)

*For the first six months only, 118,245 lb is unofficial figure for the year.

Tea Committee

Eleven (11) meetings were held during the year. Items discussed included: Tea cess, subsidy on tea exported, Tea Marketing Pool, Import duty on tea, Tea Propaganda.

A special meeting with all the factory owners was also held to discuss the formation of a Tea Marketing Pool.

Tea Factories

Bois Chéri and *Avenir St. André* continued in production.

Pont Colville.—The new factory commenced manufacture in July though it is not yet fully completed.

Nouvelle France.—The factory has commenced manufacture but the lofts need completion and some alterations are required to the machinery.

Usine Corson.—The steel-framed building has been completed and machinery installed and is in production. The withering lofts are still to be completed.

Labour.—Labour has again been in short supply on most plantations, especially during the height of the season.

Tea Seed

A further 1,000 lb of high jat seed was obtained from Lujeri Estate, Nyasaland, by air in March/April. Germination was not as good as the previous year, due to the very wet winter which caused the seed to rot in germinating beds and in the field.

Two thousand, three hundred and ninety one (2,391) pounds of seed were harvested from the seed bearers at Parc-aux-Cerfs. These bearers are grown from seed imported from Malaya. They are now 5 years old. Of the seed harvested, 682 lb were sold to planters for Rs. 2,372.75 (£ 179-0-9d), the remaining 1,709 were planted at Crown Land Wooton and Crown Land Midlands.

Tea Experimental Station

(*a*) C. L. Wooton

Clearing.—An area of 9·25 acres has been cleared ready for planting in 1954. Twelve (12) acres were planted during the year, 3 acres with Nyasaland jat seed-at-stake, 7 acres Malayan jat seed-at-stake and 2 acres with Malayan jat transplanted from Nursery with Hersall transplanter. During the course of the year, the whole area was surveyed and the acreage under tea at the end of 1953 was :—

No.		*acres*	
1 (*a* & *b*)	...	6· 5	
2	... ...	4· 5	
3	... ...	5· 5	
4	... ...	3· 8	
5	... ...	17·25	
6	... ...	9·75	
7	... ...	9·25	(to be planted in 1954.)
TOTAL	...	56·55	

Fields No. 1, 2 and 3.—The total yield from these fields for the first season 1952–53 which ended on 30th June, 1953 was 33,351 lb green leaf or 7,670 lb made tea.

The yields per acre were :—

No.	*lb made tea*
1	... 320
2	... 695
3	... 482

The tea in Nos. 1 and 2 fields is Malayan jat and No. 3 field is local jat. The reason for the low yield in field No. 1 is that in this area, the original nurseries were laid out, and there were broad rows across the field in which rocks, tree stumps and soil were pushed by the bulldozer when the field was originally opened. These rows and the old nursery have now been planted in tea.

During the six months, July to December, 1953, the yield was : —

No.	*lb made tea per acre*
1	201
2	335
3	269

In September No. 3 field was given a light skiff to keep it in being for another season.

Field No. 4 and part No. 5 field—These fields were cut across in the beginning of June and tipped in September. They have yielded to date :—

No.	*lb made tea per acre*
4	108
5	123

The green leaf this year is being sold to Bois Chéri Estate Ltd.

The one-year old tea in the remainder of field No. 5 was pegged down in March and will be ready for a cut across in April, 1954.

All these fields received an application of 500 lb of fertilizer to the acre in October/November, and where *Tephrosia candida* was grown, the loppings were forked in together with the fertiliser. The whole area has been planted with wind breaks of *Grevillea robusta ; Albizzia molucana* has been planted between the wind breaks.

Field No. 6—Three acres were planted with Nyasaland jat seed-at-stake, the remainder 6·75 acres was planted with Malayan jat, 4·75 acres seed-at-stake and 2 acres with plants transplanted from nursery bed by Hersall transplanter. Vacancies in the whole area have been supplied and *Tephrosia candida* has been planted every third row. The young plants are doing well and will be pegged down in February, 1954.

Vegetative propagation—Further cuttings were taken from the 19 clones which had already been planted, and these will be ready for transplanting early in 1954. The original planting was cut across in June, tipped in September and are now in bearing. So far, in respect of spread and flushing No. 11 clone appears to be the best.

(b) Midlands

No. 1 Field (20 acres) (Planted in June 1952).—The tea plants in this field were pegged down in March, and fertilliser at the rate of 500 lb per acre was applied in September and together with the loppings of *Tephrosia candida* was forked in. These plants will all be ready for a cut across in June 1954. The windbreaks of *Grevillea robusta* have made good growth.

No. 2 Field (43½ acres).—Planting of Nyasaland jat seed-at-stake was commenced in April. Owing to a very wet winter at Midlands, a great deal of seed went mildewy in the germination beds and in the field, with the result that only 18 acres approximately were planted with Nyasaland jat, the remainder was planted with Malayan jat seed from our own seed-bearers. Vacancies have as far as possible been supplied from nurseries with Hersall transplanter. *Tephrosia candida* and *Crotolaria grahamina* have been planted every third row as a green manure crop. About 20 acres have been planted with wind breaks of *Grevillea robusta*.

The three acres of Nyasaland jat planted in 1952 and set aside as seed-bearers have made good growth ; they were given an application of fertiliser in September.

A swampy area of about 2·5 acres in Field No. 1 has been planted with *Eucalyptus robusta* to try and dry it up.

An area of 29 acres has been leased in 5 plots of 5 acres each and one of 4 acres to small holders who will be planting in 1954.

Plant Pests and Diseases

Some minor attacks of grey Blister have been seen. In Field No. 2 at the Tea Experimental Station and among the tea seed-bearers at Parc-aux-Cerfs, a few cases of *Armallaria Melles* have been found. In each case, the affected bush and the old tea stumps believed to be source of infection have been uprooted and burnt.

D. N. Andrews,
Acting Tea Officer.

Land Settlement Division

Petit Sable Smallholding Scheme

The ten dwelling houses on the residential holdings are all occupied ; the other buildings have been erected. Certain minor faults in the buildings have still to be remedied but all these works will be completed early in 1954.

An estate building to act as an office, a meeting hall and a store is now being provided. Road tracing works to provide an access to the additional holding brought into cultivation on the upper part of the scheme at Grand Sable have been completed and the metalling of this estate road is being carried out. The planting of about 6,000 trees in the upper area of the scheme is being effected to assist in the prevention of soil erosion. All works on this scheme are expected to be completed during the first quarter of 1954.

All rents for the period to 30th June, 1954 have been prepaid and tenants are all in a reasonably satisfactory financial position. Good crops have been obtained throughout the scheme and the record crop for the scheme of 44 tons sugar cane per acre was obtained on one holding.

Richelieu

Ten residential holdings and 11 bare land holdings have now been allocated. The Building Contractor is proceeding with the erection of ten dwelling houses and outbuildings including the improved type of cowshed for two cows ; these should be completed by the end of June 1954. Irrigation works are in hand for the utilisation of an existing reservoir on the scheme and should be completed shortly. Tenants are proceeding with the planting of the cane crop and the whole of the area is being satisfactorily cultivated, 50 per cent in sugar cane, and 50 per cent in food crops.

The Public Works Department are preparing for the installation of a domestic water supply to cater for the needs of the tenants.

Terre Rouge

A total of 103 tenants have been settled on smallholdings including twenty residential smallholdings equipped with dwelling houses and outbuildings. The domestic water supply for the residential holdings and the main part of the scheme has been installed but a further supply, to be taken from the Riche Terre Road, requires to be dealt with. The Contractor is making good progress with the construction of the dwelling houses and outbuildings.

An estate building to act as office, meeting hall and store is also being provided on this scheme.

The Public Works Department are progressing with the construction of the irrigation canals which will convey the irrigation water from the Calebasse river to the Terre Rouge Land Settlement Scheme. The latest information is that irrigation water is expected to be available for the small-holdings by July 1954.

The Land Settlement Surveyor is now proceeding with that part of the levelling survey required to complete the contour map to be used in the detailed plan of the irrigation water distribution on the scheme. The proposed appointment of an additional temporary surveyor for the survey works, and building supervision on the Richelieu and Palmar Schemes will enable the Land Settlement Surveyor to make more rapid progress with the levelling survey which has had to be left in abeyance for some time.

Due to the absence of irrigation water, it has not been possible for tenants to plant cane on this scheme so far, but during the year very satisfactory food crops have been obtained owing to a very prolonged rainy season.

Two Co-operative Credit Societies will be formed on the Terre Rouge Scheme ; preliminary work in connection with this matter is proceeding.

A very considerable amount of stones and racks amounting to thousands of tons, have been removed from this scheme, by the malarial gangs for water channels, by the Public Works Department for roads, and by private persons for building foundations. The clearance of rocks has been of considerable advantage to the scheme without incurring any expenditure from Land Settlement funds.

Palmar Dairy Smallholding Scheme

The greater part of Crown Land Palmar has been reserved for Land Settlement purposes and is shortly to be declared a "Land Settlement area." A first scheme of ten dairy smallholdings is now being established. These holdings will consist of 4 acres of cultivable land, 4 acres of scrub land and 4 acres of shade grazing for fodder for stock. Dwelling houses will be provided and a cowshed to accommodate six cows will be included in the outbuildings.

An area of 60 acres was first cleared of scrub by the Forest Department, the Mechanical Unit of the Food Production Board then proceeded to carry out bulldozing and ripping of the whole area.

Tenants selected by the Land Settlement Selection Committee have been allocated the dairy holdings and are proceeding with the cropping of the cultivable land. The building contractor is pushing forward with the construction of the buildings and should complete these by the end of June 1954.

The Public Works Department is undertaking the installation of the domestic water supply. When the buildings have been completed, tenants will reside on the holdings, and will start milk production with a stock of 4 cows which, after one year, will be increased to six. The market for milk in the first instance will be the Child Welfare centres and other Government institutions which have a prior claim on milk produced under modern clean milk production lines.

In addition to the ten dairy small holdings of 12 acres each, 13 bare land holdings of approximately 2 acres each will also be leased for cultivation to help to meet the demand for land in the area. A plan for the extension of the scheme, with estimates, has been furnished by the Land Settlement Officer, and if approved, should be implemented in the year 1954–55.

General

The total number of applicants who have applied for small holdings amounts to 1,857. All available prepared lands on the various schemes have now been leased, including Petit Sable and Grand Sable, Richelieu, Terre Rouge and Palmar. The number and type of subjects leased are undernoted :

50 residential holdings,
117 bare-land holdings,
41 allotments,
80 onion plots.

The Land Settlement Advisory Committee held a number of meetings during the year. Visits of inspection were made to all the land settlement schemes by members of the Committee ; a visit was also paid to the irrigation canal under construction by the Public Works Department in the Long Mountain area for the conveyance of irrigation water to the small holdings at Terre Rouge.

J. Bett,
Land Settlement Officer.

Livestock Division—A. Veterinary Section

Disease Control

Tuberculosis.—Attemps to control bovine tuberculosis by means of tuberculin testing and elimination of reactors have continued with good results. On dairy cows, the incidence of tuberculosis is very low ; out of 270 milk cows tested only 5 positive cases were recorded. The incidence on herd cattle, however, is rather high, but it is expected that with the adopted policy of regular testing and elimination of reactors the position will improve.

Contagious Abortion.—This Disease is still restricted to the Government Dairy. Agglutination tests are methodically carried out, all positive reactors being immediately isolated. S. 19 vaccine is still the method of control which is adopted for young females and the results obtained so far are encouraging as evidenced by the fact that no case of abortion has been recorded during the whole year.

Deficiency Diseases.—About 900 cases of mineral deficiency diseases were attended to, out of which some 850 were cases of hypocalcæmia and ricket.

Pulfy Kidney Disease on Lambs.—An outbreak occurred in a flock ; control measures were immediately taken. Serum inoculation reduced the mortality from 75 per cent to 20 per cent. Vaccination is now being carried out.

Internal Parasites.—The routine curative treatment continues to be carried out mainly against the stomach wire worm of sheep and goats. The results obtained are highly satisfactory.

External Parasites.—The nostril fly of sheep and goats was kept under control by the usual method of nasal instillation and fumigation.

Poultry diseases.—The experiments carried out with Fowl Cholera vaccine are very encouraging, the vaccinated birds being far more resistant to disease during outbreaks than non-vaccinated ones. It is intended to intensify the vaccination programme in future.

Fowl pox vaccination is done on a bigger scale vaccinated animals being protected to a very high degree against infection.

Sterility Control

About 650 dairy cows were treated for cystic ovaries by enucleation, most of them being restored thereby to normal breeding cycle.

Artificial Insemination

Some 6,000 dairy animals were artificially inseminated, and the rate of conception remained as high as previously recorded, being about 70 per cent.

General Veterinary Assistance

About 7,000 calls from breeders for treatment of different ailments were answered.

Slaughter Houses and Meat Inspection

Frequent inspections of slaughter houses were made. The control of dairy animals for slaughter was continued.

Veterinary Education

Lectures were given at the Agricultural College to 2nd-year students as well as to those attending the Tropical Agriculture course.

Quarantine

The number of dogs imported during the year amounted to 11. They were quarantined at the Government kennels for 6 months.

Mission to Madagascar

Mr. R. Bouvet visited Madagascar during the year with the object of ascertaining whether it would be possible to import meat on the hoof from the southern part of that country. His report was submitted to Government on 10th September, 1953, and legislation governing the importation of live cattle from Madagascar was modified to allow cattle to be shipped from the south.

Veterinary Staff

Mr. R. M. Bouvet, M.R.C.V.S., Veterinary Surgeon, joined the Agricultural Department as Veterinary Officer and was in charge of the Veterinary Division during the absence on leave of the Senior Veterinary Officer who resumed duty on the 21st of December.

Whilst the Senior Veterinary Officer was in Europe, he attended the International Veterinary Congress in Stockholm and the International Dairy Congress at the Hague as the Mauritius Government representative.

A. DARNÉ,
Senior Veterinary Officer.

B. Animal Husbandry Section

Staff

Another Livestock Officer and three more Livestock Assistants were appointed, bringing the total to seven Livestock Officers and fifteen Livestock Assistants.

Extension Work

Artificial Insemination and Veterinary Cases.—This service was further expanded in September by the opening up of a Station in the last district—Rivière du Rempart. The whole island has thus been covered in two years from the start of the Animal Husbandry Extension Service, i.e. in half the anticipated time.

The appended table shows the progress made :—

Year	*Artificial insemination*	*Treated for sterility*	*Treated for Ca and P deficiency*	*Miscellaneous treatments*	*Total*
1951 ...	155	108	124	267	654
1952 ...	1,743	534	816	3,610	6,703
1953 ...	5,939	610	796	6,133	13,478
TOTAL TO DATE.	7,837	1,252	1,736	10,010	20,835

Poultry Improvement.—During the year 182 pure White Leghorn cockerels were exchanged among the peasants for scrub birds not without difficulty, the owners being unwilling to make a fair exchange weight for weight.

Concentrates.—In July propaganda was set afoot to persuade cow-owners to feed their animals on concentrates, and shop-keepers to stock it, with fair success. Fifty-one tons of concentrates from the Government Mill at Richelieu were distributed to shops during the six months of which a little over half was sold to cow-owners.

Field Competitions.—Four classes of field competitions have been started in the Mare d'Albert and Nouvelle France area and twenty entries in each have been received. Judging will be carried out in February 1954 and prizes will take the form of livestock from the Palmar Stock Breeding Centre.

Creole Milk Breed

The environmental and feeding tests with the six (later five) Creole cows at Reduit Stock Farm have reached the end of the second lactation. The cows had produced milk during their first lactation on peasant-owned rations, and had been kept in a typical Indian shed. They are now kept under optimum conditions of feed and housing. The results obtained were :—

	%
Increase in length of lactation	80
Increase in total milk produced...	202
Increase in average daily production	69
Increase in average maximum daily production	52

As two of the animals, now in their third lactation since the start of the tests, show signs of a further increase in milk yield, the experiment is to be continued.

Creole herd.—A further twelve animals were bought from peasant owners during the year, bringing the total of mature females to twenty, fourteen of which are housed in the new byre at Palmar which will eventually hold 28. The masonry of a heifer stable and the foundations of a bull-and-calf stable were laid.

Four young Creole bulls are to be progeny tested each year for use in this herd and for artificial insemination among peasant-owned animals.

Bulls at Outstations

Five hundred and seven (507) females were served as against 839 in 1952. All bull stations are now being closed down or converted to Artificial Insemination centres. Purebred Friesian bulls have been eliminated from the Artificial Insemination service until such time as tested Creoles are available, ¾ and ½ bred Friesland × Creole semen is being used.

Government Dairy

It will be seen from the accompanying table that although the total milk production during the year has risen by 4,115 kilos (885 gallons), the average output per lactating female has fallen by 150 kilos (32 gallons). This is attributable in the main to lowered fertility due to various factors now under control. The total production of the herd is the highest yet obtained.

	1952	*1953*
Average No. of cows in milk	41	45
Total milk produced per herd ...	122,271 kgs 26,303 gals	126,386 kgs 27,188 gals
Average total output per lactating cow during the year	2,982 kgs 641 gals	2,832 kgs 609 gals
Average daily yield per lactating cow during the year	8·15 kgs 17·93 lb	7·76 kgs 16·97 lb

The health of the herd was very good—there were neither deaths nor abortions.

Contagious abortion—For the second consecutive year there have been no abortions in the Government Dairy herds at Curepipe, Reduit and Palmar. This healthy state of affairs is in the main attributable to the methodical use of the Kabete strain of S. 19 vaccine over the last three years, and to the fact

that there have been no introductions into the affected Curepipe herd. Out of the 138 females in the three herds only 13 or 9·4 per cent are infective, all of which are at Curepipe, as against 18 per cent last year and 29 per cent in 1951. There were no new infections. Five infective animals were discarded.

Pilot Haymaking Scheme

The first plot of land was ready for planting at the end of January, but owing to drought conditions it was not till the 21st of the following month that a start could be made. Plantings and sowings for the year were as follows :—

Tropical Kudzu (*Pueraria javanica*)	8 acres
Lucerne (*Medicago sativa*)	3 ,,
Perennial Lespedeza (*Lespedeza cuneata*)	1 acre
Molasses grass (*Melinis miuutiflora*)	1½ acres
Elephant grass (*Penisetum purpureum*)	2½ ,,
Guinea grass (*Panicum maximum*)—poliploid	1 acre
do. do. —normal	1 ,,
Dallis grass (*Paspalum dilatatum*)	1 ,,
" Acacia " (*Leucoena glauca*)	1 ,,
	20

Tropical Kudzu

This appears to be the most promising crop on account of its high protein content, drought resistant qualities and abilitv to compete with weeds and to smother them. Its one drawback is that it requires hand weeding for the first four months or so until established. No hay has as yet been made.

Lucerne

Half an acre sown with seed from Reunion failed to germinate. South African seed was used on the remaining 2½ acres with excellent germination. The resulting crop has had a lot of ups and downs. As the inoculant ordered did not arrive, it suffered in the early stages from paucity of rhizobia and excessive rains gave it " wet feet. " No sooner was it over this than nacolea caterpillars caused severe defoliation and the crop had to be mown, resulting in the satisfactory yield for a first cutting of ⅓ ton of hay. The lucerne came away well, but at the time of writing weeds appear to be gaining the upper hand. Experiments in thicker sowing are to be conducted when more seed is available. At present lucerne must be regarded as an unknown quantity. Indications are that it will succeed on the better and deeper portions of soil at Plaisance.

Lespedeza

The two half acre plots sown in autumn were practically complete failures, as also a re-sowing in December. Germination tests are being carried out ; various sowing techniques are to be tried.

Molasses Grass

This has been very successful. An acre planted in March yielded, mature, two tons of hay in September, and is again ready for cutting in the early stages. A further ½ acre has been put down and more will be planted in January. This crop is well able to cope with weeds and requires very little labour.

Elephant Grass

By far the heaviest yielded. Six tons of " stover " were made in September from two acres. The big problem is to get the stems fine enough to allow of the crop being turned into hay. Closer planting and frequent mowing are being tried.

Guinea Grass (polyploid)

As this grass grows wild at Plaisance, an acre was tried out, but it appears to do better in association with scrub plants such as lantana (where not too thick), acacia, etc. In any case it is very low in protein and the stems are too thick for good hay.

Guinea Grass (normal)

This is doing reasonably well. It may be usefully grown in conjunction with legumes—lucerne, kudzu, lespedeza.

Dallis Grass

The acre established was originally from New Zealand seed. It has made good cover in the nine months but would appear to be too free a seeder under conditions at Plaisance. It is, however, too early to judge.

Acacia

This has not done well ; although nutritious the proportion of woody stem to leaf is too high for it to compete with less fibrous legumes in the amount of protein produced per acre and it would be very difficult to turn into hay. Harvesting by machinery will also present a problem.

The Slade Curran drying plant is being installed and adapted to "barn" mow drying. A further 25 acres of lantana—and boulder—covered land was cleared by rock rake. Of this three acres have already been planted to Kudzu, and it is hoped to have the remaining 22 acres planted up by April, making a total of 42 acres under crops by which time it will be possible to present a statement of costs.

Palmar Stock Breeding Centre

Sheep.—Deaths among the Dorsians from the attacks of Oestrus ovis continued during the first half of the year when 8 ewes and 7 lambs succumbed. Thereafter losses stopped with no recrudescence even after the rains had come. This parasite constitutes a serious and baffling problem. The half-bred Dorsian and local sheep suffered to a far less extent.

Goats.—The Anglo-Nubian flock now numbers 19. One young buck was sold for Rs 300 (£22.10.0) and two were put to stud at Barkly but have not been well patronised. The cross-bred (Anglo-Nubian and local Bar-bari) flock has increased to 28. Six young does were sold at Rs 50 (£3.15.0) and a further three to the Training College.

Cattle. Ongoles.—The bull was temporarily exchanged for a Brahman belonging to an estate in order to create a second blood line, but unfortunately the latter is unable to serve due to some defect. Negotiations are afoot to borrow another Brahman. The herd now numbers 17. Three eighteen months old bulls were sold by auction and purchased by estates at an average price of just under Rs 1,000 (£74.12.0 d.)

Heifers and young bulls from the Dairy.—It has been a bad year for young calves ; no less than eight heifers and twelve castrates died from anæmia apparently not unconnected with the excessive rains early in the year, and from what appeared to be heat stroke. The older animals did well.

Creole herd.—The health of the herd has been good. Four young calves died from anæmia but none from heat.

Afrikanders and Local Zebus.—As always have been in first class condition.

J. G. S. Bennie,
Animal Husbandry Officer.

Plant Pathology Division

Staff Changes

Mr. L. Orieux, Plant Inspector, who had left for England on a study leave in 1949, returned on 3rd August, after graduating B.Sc. in Biology at Leeds University.

Mr. R. Antoine, Assistant Plant Pathologist, left the Division on December 8th to take up the post of Senior Agricultural Officer.

Diseases of the Sugarcane

Chlorotic streak disease has now assumed major importance chiefly in the elevated regions with heavy soil and high rainfall. Five sugar estates and one big planter in Grand Port, Savanne, Moka and Flacq districts erected equipment for the hot-water treatment of cane cuttings (52° C for 20 minutes) and adopted the process for large scale application during the year. A number of other estates are doing the same thing and it is expected that by 1954 practically all the large estates will be carrying out the process as routine practice.

The new Sclerospora disease reported a few years ago from Queensland and more recently from Louisiana and Peru and believed to be caused by *Sclerospora macrospora* Sacc. was identified for the first time in Mauritius this year. The disease is not considered to be new here, but the scarcity of the cases would have failed to attract proper attention. Cases had in fact been occasionally met with in the past, in which cuttings had given rise to a large number of small, weak shoots, resulting in a witches' broom appearance, but the cause had been attributed to bud proliferation from stem galls on the planted cuttings (cf. *La Revue Agricole de l'Ile Maurice, 1951*, pp. 230–231). It is now believed that some of these cases may have been due to Sclerospora disease.

The outbreak of the disease occurred this year in July in a young virgin field of M. 134/32 on an estate in Plaines Wilhems, a total of 120 completely and 211 partially diseased stools being counted in an area of about 3 acres of the affected field. The identification of the disease was confirmed by the Commonwealth Mycological Institute. Search for diseased wild grasses in the vicinity was negative and the source of the infection could not be traced back. The severity of the attack may, however, be related to the excessively rainy weather experienced this year. It is not expected that the disease will prove of economic importance.

Root disease associated with *Pythium* spp. was encountered in severe form in a few small patches in three tall M. 134/32 ratoon fields on an estate in Flacq.

Severe accidental hormone injury to a few M. 423/41 stools and injury to a lesser extent, most likely resulting from too high a concentration of weedicide, on young M. 134/32 and E. 1/37 young virgins, were observed on two estates.

Towards the end of the year, preliminary investigations were made into the possibility of the existence of ratoon stunting disease in the island, but owing to the closing of the reaping season, the researches had to be postponed to 1954. The presence of chlorotic streak complicates the search for the disease. In view, however, of the possibility of its existence in the island, investigations of an exploratory nature were made as to the response to prolonged hot water treatment with a number of our sugarcane varieties. The following table gives the results of the experiments carried out.

Expt.	Location	Variety	Period of observation (months)	No. of eyes planted		Control	% Germination					Chlorotic streak		
				Control	Treatment		50° C for		52° C for		54° C for	Control	50° C for	50° C for
							1½ hrs.	2 hrs.	1 hr.	1½ hrs.	1 hr.		1½ hrs.	2 hrs
I ...	Greenhouse ...	134/32	1	30	30	90	53	—	—	—	—	—	—	—
II ...	do. ...	B 41227	2½	18	19	22	—	0	—	—	—	—	—	—
		P.O.J. 3016	,,	19	18	58	—	0	—	—	—	—	—	—
		Trojan	,,	19	19	47	—	11	—	—	—	—	—	—
		Pindar	,,	18	18	44	—	22	—	—	—	—	—	—
		R. 366	,,	13	12	92	—	17	—	—	—	—	—	—
		R. 397	,,	17	15	65	—	40	—	—	—	—	—	—
III ...	do. ...	134/32	1½	45	45	75. 5	51	51	57.7	8.8	0	6	0	0
		E. 1/37	,,	,,	,,	57. 7	62	51	40	0	22	65	0	0
		B 34104	,,	,,	,,	53. 3	65.5	62	84.4	24.4	8.8	—	—	—
IV ...	Field ...	134/32	4	150	150	53	—	0	—	—	—	—	—	—
		423/41	,,	,,	,,	57	—	0	—	—	—	—	—	—
		63/39	,,	,,	,,	34	—	3.3	—	—	—	—	—	—
		112/34	,,	,,	,,	56	—	0	—	—	—	—	—	—
		171/30	,,	,,	,,	53	—	0	—	—	—	—	—	—
		B 34104	,,	,,	,,	45	—	1.3	—	—	—	—	—	—
		B 3337	,,	,,	,,	51	—	6.6	—	—	—	—	—	—
		B 37161	,,	,,	,,	62	—	0	—	—	—	—	—	—
		B 37172	,,	,,	,,	74	—	3.3	—	—	—	—	—	—
		Co. 419	,,	,,	,,	72	—	2	—	—	—	—	—	—
		W. Tanna	,,	,,	,,	38	—	0	—	—	—	—	—	—
		B. H. 10/12	,,	,,	,,	42	—	0	—	—	—	—	—	—
		E. 1/37	,,	,,	,,	36	—	0.7	—	—	—	—	—	—
		15 old varieties	,,	,,	,,	20.80	—	1	—	—	—	—	—	—
V ...	do.	134/32	3	,,	,,	66	—	22	—	—	—	43	—	0
		E. 1/37	,,	,,	,,	51	—	25	—	—	—	59.7	—	0
VI ...	do.	134/32	2½	90	90	51	28	—	16.6	3.3	1	—	—	—
		B 34104	,,	11	,,	44	34.4	—	26.6	12.2	11	—	—	—

A field experiment carried out on an estate by the Mauritius Sugar Industry Research Institute at the request of the Plant Pathology Division, on three ½-acre blocks comprising altogether 18,000 M. 134/32 cuttings, with an equal number of controls, gave an index of germination of 20 for the cuttings treated at 50°C for 2 hours, against 100 for the controls.

The above figures indicate that there is great varietal difference in the response to prolonged hot water treatment. They show that general field conditions are not in general conducive to proper growth by the treated cuttings, but that where the water requirements can be controlled, the first three time-temperature combinations mentioned can in general result in sufficient germination to enable the establishment of nurseries from which healthy material would be obtained for propagation.

It was also observed in the above-mentioned experiments that the vigour of growth of the shoots from the treated cuttings was severely affected by the treatments, being only from about one-third to one-fourth that of untreated material, a defect which can most likely be remedied by a suitable application of fertilizers.

These experiments also indicated that the hot water treatments at 50°C for 1½ and 2 hours seemed to control chlorotic streak.

Maize

Information from the Commonwealth Mycological Institute had been received in November 1951, about the outbreak of maize rust caused by *Puccinia polysora* Und. in West Africa and about the virulence it had developed in that area. Legislation was, in consequence, passed in February 1952, prohibiting the importation ot maize from the affected countries and from territories bordering them.

In March of this year, however, a destructive disease of maize broke out suddenly at widely seperated places in the island. The disease was identified as the rust caused by *Puccinia polysora* the diagnonis being confirmed by the Commonwealth Mycological Institute. The reduction in yield experienced varied from about 50 to 75 per cent. It has not been possible to find out how the disease was introduced into the Colony. The epidemic resulted in severe shortage of maize which had to be supplemented by imports.

In one of the affected areas under extreme condition of humidity, the uredosori were observed to have been produced on the exposed stem parts of the affected plants, besides the leaves and sheaths.

At the suggestion of the Commonwealth Mycological Institute, contact was made with the West African Inter-Territorial Secretariat at Accra, and with the Maize Research Unit of Nigeria for information on recent work on the disease and for a supply of seed of varieties resistant to the rust. Nine varieties were received for trial in 1954.

During a short mission to the neighbouring French island of Reunion in May, the disease was detected in the Windward Section of the island in fields of local maize varieties, it had not been previously observed in the locality. Information was also received from Madagascar in September that the rust had been newly detectcd in that country and that the attack had started in March, in one of the affected districts. It is interesting to note the simultaneous outbreak of the disease in different islands in the Indian Ocean area.

A short note about the occurrence of the rust in the islands mentioned was forwarded for publication in *Nature* towards the end of the year.

Potato

Bacterial wilt caused by *Pseudomonas solanacearum* Smith was widespread, due probably to the excessively rainy weather experienced this year. Crops of the Arran Banner variety raised from imported Scotch seed, proved a total failure and the disease resulted in shortage of the foodstuff on the local market. Crops of the King George variety and of Australian and Mombasa stock proved more resistant.

Late blight, caused by *Phytophthora infestans* (Mont.) de Bary was also severe in many cases.

Another disease of the crop which had been occasionally encountered in the past in the island, occurred in fields of the Arran Banner variety at Piton in Pamplemousses district. It is characterised by :

(*a*) A pronounced downward curling of the margins of the young leaves, coupled with their general bronzing and reduction in size ;

(*b*) A yellowing, chiefly of the lower leaflets of the young leaves, observable at first along their margins, and followed by scorching of the affected tissues, and

(*c*) Death of the youngest leaves of the growing tip.

The symptoms are rather similar to those of the Psyllid yellows of potato, but no psyllid has ever been seen on the affected plants The cause of the disease is unknown.

Other Diseases

On New Zealand Hemp.—A root and stem rot of *Phormium tenax* Forst., associated with *Fusarium* sp., was observed on seedlings grown at the Barkly Experiment Station and at the Curepipe allotments. A leaf spot associated with *Glocosporium* sp. was also observed in the latter area.

On Kenaf and Roselle.—Root rot of *Hibiscus cannabinus* L. and *H. sabdariffa* L. var. *altissima*, was encountered at Richelieu Experiment Station. It was caused by an undetermined species of *Phytophthora.*

On Tobacco.—Frog eye caused by *Cercospora nicotianæ* Ell. and Everh. and *Alternaria* leaf spot (early blight type) were very severe in many plantations.

Mission to Reunion

During the Plant Pathologist's visit to Reunion, cases of the following diseases were met with :—

On sugarcane.—leaf scald, gumming, red rot, eye spot, smut, mosaic and a root disease associated with *basidio mycetous fungus.*

On coconut.—bud rot, probably caused by *Phytophthora palmisora* Butt ;

On maize.—rust caused by Puccinia polysora Und. ;

On filao.—(*a*) (*Casuarina equisetifolia* Forst)—wilt probably caused by *Pseudomonas solanacearum* Sm. ;

(*b*) (*Casuarina tenuissima* Sieber.)—root rot of undetermined nature.

Phytopathological Conference Mauritius—Reunion

A conference was held from August 3rd to 8th at the Department of Agriculture, Reduit, under the auspices of the "Comité Permanent de Collaboration Agricole Maurice—Réunion," with the object of discussing questions of phytopathological and entomological interest to the two islands.

At the conference, which was attended by two delegates from Reunion and four from Mauritius, papers were read on the following subjects :—

The visit to Reunion island by the Plant Pathologist of Mauritius.

The quarantining of important sugarcane varieties.

The disinsectisation of aircraft in Mauritius and Reunion.

The importation of plants and plant parts by air.

The certification of potato consignments for importation into Mauritius.

Aspects of Agricultural Entomology in Mauritius.

Wilt of sugarcane in Reunion.

Chlorotic streak disease of sugarcane.

Discussions followed the reading of the different papers and a number of resolutions were passed relating to plant protection measures between the two Islands.

Control of Imported Plant Material

Cane Quarantine Greenhouse.—The varieties R. 366, R. 397, Pindar, Trojan, P.O.J. 3016 and B. 41227, introduced from Reunion island in 1952, were planted into second generation in the greenhouse in September. The knife used was sterilized prior to cutting each stool. Two lots of cuttings were prepared from each variety and one of each treated with hot water at 50°C for two hours. No cutting of the varieties B. 41227 and P.O.J. 3016 survived the treatment, so that the second generation of these canes in the greenhouse was raised only from untreated cuttings. One drum each of treated and untreated cuttings of the other varieties, was planted into second generation.

Of the varieties H. 32–8560, H. 37–1933 and Eros, introduced from the U.S.A. Department of Agriculture in 1952, the first showed early during growth a drying out of the tips of the leaves, coupled with a fan-shaped arrangement of the leaves of some shoots. Information was received in March that the H. 37–1933 material sent was suspected of having been affected with ratoon stunting disease. It was in consequence decided to destroy the three varieties received from the same source, as the canes had been growing in the same room in the greenhouse and as the disease has not yet been proved to exist in the Island.

Plant Inspection at the Harbour and Airport.—The control of the import of plants and plant parts at the Harbour and Airport continued as in former years.

Legislation.—The following legislation was promulgated during the year :—

(a) Proclamation No. 15 of 1953—to prohibit the exportation of maize from Mauritius to Rodrigues and any of the Lesser Dependencies of Mauritius.

(*b*) Proclamation No. 22 of 1953—to prohibit the importation into Mauritius of the tomato plant *Lycopersicum exulentum* Mill from Reunion and Madagascar (amending Proclamation No. 18 of 1951).

(*c*) Proclamation No. 23 of 1953—revoking Proclamation No. 7 of 1952, which prohibited the importation into Mauritius of maize from certain parts of Africa.

Miscellaneous

Three broadcasts talks were delivered by the Plant Pathologist early in the year. Two of them dealt with potato diseases and the third with chlorotic streak disease of sugarcane. It is gratifying to note that the large scale adoption of the hot water treatment of sugarcane cuttings against the disease is in part the result of the recommendations then made. The talk was published in the " Revue Agricole de l'Ile Maurice " (Vol. xxxii, No. 3, pp. 115 to 120).

Visits were paid to estates and small planters and advice given on request

Acknowledgement

The opportunity is taken to thank :—

(*a*) The Commonwealth Mycological Institute for help with the identification of some of the diseases mentioned in this report and for advice given in connection thereto.

(*b*) The Director of the Bureau of Sugar Experiment Stations, Brisbane, for assistance in connection with the search for ratoon stunting disease in Mauritius.

(*c*) The Director and the Senior Scientific Officer, The Maize Research Unit, Ibadan, Nigeria, and to the Secretary, The West African Inter-territorial Secretariat, Accra, Gold Coast, for information on *P. polysora* maize rust and for the despatch of samples of seed of resistant maize varieties.

(*d*) The Director of the *Services Agricoles de la Reunion* and to the *Controleur de la Protection des Végétaux* of Reunion, for the valuable asistance given and the courtesy shown to the writer during his mission in Reunion.

(*e*) The Director, the Mauritius Sugar Industry Research Institute for help in carrying out certain researches on sugar estates.

G. Orian,
Plant Pathologist

Entomological Division

1. Staff

The Associate Entomologist left for overseas leave on 20th May and was away for the rest of the year.

Mr. C. M. Courtois, Scientific Assistant, was transferred to the Agricultural Division on 3rd January 1953 and was replaced by Mr.C. Mongelard on 14th August 1953. One post of Scientific Assistant was vacant throughout the year.

2. Importations of Beneficial Insects

The biological control work accomplished during the year is summarised in the following account of the insects which were imported.

Ipobracon sp. (*?grenadensis* Ashm.) (Braconidae)—Imported from Trinidad against the spotted borer of sugarcane, *Proceras sacchariphagus* Boj. A total of twenty three consignments comprising about 3,750 pupae were reveived. These enabled the release of approximately 750 females and 2,100 males between April and September. Attempts to breed the parasite in the laboratory upon *P. sacchariphagus* were not successful.

Agathis stigmaterus Cress. (Braconidae)—Imported from Trinidad against *P. sacchariphagus*. Previous importations of this parasite have been mentioned in the Annual Reports for 1949–52. During the year under review nine consignments consisting of about 650 pupae were received. Mortality was high and only 70 females and 8 males could be released. There is no evidence that this parasite has become established as a result of earlier importations and attempts to breed it have always failed. No further attempts to establish it will be made.

Enicospilus sp. (Ichneumonidae)—Imported from New Britain, Territory of New Guinea, against *Sesamia calamistis* Hamps., the pink borer of sugarcane. Mr. G. S. Dun, Entomologist of the Lowlands Experiment Station, Kerevat, near Rabaul, very kindly sent 363 pupee of this species which had been bred from *Sesamia grisescens*. They were received in September ; 116 females and 78 males emerged and were released in October.

Cryptochaetum monophlebi Skuse (Agromyzidae).—Imported from Madagascar against the common white mealy-bug, *Icerya seychellarum* Westw. In addition to the consignments received in 1952, two were received in January February from which 17 flies were obtained and released. Towards the end of the year it was found that the parasite had become established and was commonly parasitising *Icerya* in the two localities where it had been released. No dispersion of the fly from these two localities had apparently occurred and collections were made for release in other districts.

Pachylister sinensis (Histeridæ).—Two consignments of this *Musca* predator were received from Trinidad. Of the 1,500 beetles sent, 1,025 were received alive and they were released in June and August. A previous importation of this predator has been recorded in the Annual Report for 1950.

The following species were imported from Trinidad during March–November against *Maruca testulalis* Gey. (Pyraustidæ) and *Etiella zinckenella* Tr. (Phycitidæ) which are the two major pests of *Cajanus cajan* L. (Ambrevade, Pigeon Pea).

Microbracon spp. (Braconidæ).—About 35,500 cocoons consisting of two species, *Microbracon thurberiphagae* Mues. and an undetermined species, were received in fifty eight consignments. The approximate numbers of adult parasites obtained from the cocoons and released were 6,000 female *M. thurberiphagae* and 3,300 female *Microbracon* sp ; the males of the two species were indistinguishable and about 8,500 of them were released.

Collections of bored *Cajanus* pods in October revealed appreciable parasitism of *E. zinckenella* by the undetermined *Microbracon* sp. and there is little doubt therefore that this species will become established.

Eiphosoma sp. (? *annulatum* Cress.)—About 2,200 pupae were received in forty four consignments and about 300 females and 320 males obtained for release.

Perisierola sp. (Bethylidæ).—About 1,650 pupæ were received in forty four consignments and about 800 adults obtained for release.

Apanteles sp. (Braconidæ).—About 2,700 pupæ were received in thirty seven consignments and about 370 females and 360 males obtained for release.

Phanerotoma sp. (Braconidæ).—About 1,900 pupæ were received in thirty eight consignments and about 360 adults obtained for release.

In addition to the insects listed above, unsuccessful efforts were made to obtain *Prophanurus alecto* Craw. (Scellionidae) and *Carcelia evolans* Wied. (Tachinidae) for trial against *Proceras sacchariphagus*. The former was sent from Trinidad as parasitised eggs of *Diatraea saccharalis F.*, but as happened in 1952. no emergence from the eggs resulted after their receipt, The latter, which is a parasite of *Chilotræa terrenellus* in New Britain, was received as puparia from Mr G. S. Dun of the Experiment Station, Kerevat, but nearly all proved to be hyperparasitised.

3. Sugar-cane

Apart from sugar-cane work which is described above, an investigation was begun concerning the entomological aspect of Chlorotic Streak disease. The object of this work is to determine if insect vectors are responsible for the spread of the virus from diseased to healthy plants, and if so, the species which is concerned.

A Survey to assess the incidence of the spotted borer, *Proceras sacchariphagus*, and the economic loss it causes, was also undertaken. This work has not been completed.

Occasional collections of pink borer larvae (*Sesamia calamistis*) showed that the recently introduced parasite *Apanteles sesamiae* Cam. is firmly established and of common occurrence. It had been intended to make some assessment of the incidence of parasitism which occurs, but this was not possible owing to much other work.

4. Control of the black sage, *Cordia macrostachya* (Jacq,)

There continues to be no apparent general increase or decrease in the amount of *Cordia* scrub which remains in the island.

Collections of *Cordia* fruits were made in various localities over the whole island in February, June and October, to estimate their infestation by *Eurytoma* sp. The following table shows the very satisfactory degree of infestation which occurs. It should be pointed out that the great majority of *Cordia* fruits have only one seed which matures so that the percentage of fruit infestation is more or less synonymous with percentage of seeds destroyed.

Month	*No. of localities visited*	*Min. % infestation found*	*Max. % infestation found*	*Average % infestation all localities*
February ...	24	34	91	64·6
June	23	10	78	40·8
October ...	23	15	69	48·7

5. General

(*a*) During 1952 and 1953 repeated examinations of potato crops were made in various districts of the island to determine the species of aphids which feed upon this plant and their relative abundance. The information was desired in view of the presence of Potato Leaf Roll in the island, a virus disease which is aphid transmitted.

Three species were found : *Aphis gossypii* Glov., *Macrosiphum solanifolii* Ashm., and *Myzus persicæ* Sulz. in that order of abundance. *A gossypii* was by far the most numerous, while *M. persicæ* on the other hand was very uncommon. It is to be noted that of these three species, only *M. solanifolii* and *M. persicæ* are proved vectors of Leaf Roll in other countries.

(*b*) A severe attack of young mahogany trees by a species of wood boring lepidoptera was reported by the Forest Department. The insect proved to be a species of *Hypsipyla*, not previously recorded in Mauritius.

(*c*) It was not possible during the year to continue work on red spider mites (*Tetranychus* sp.) owing to the absence on leave of the Associate Entomologist, and the establishment or otherwise of the introduced predators mentioned in last year's report could not therefore be determined.

A fairly extensive attack by mites on tea bushes was reported in November.

6. Experiments with insecticides

(*a*) A trial with " Pybuthrin " grain protectant (a dust containing pyrethrins and piperonyl butoxide) was laid down at the Maize Mill on May 13th. Two tons of insect free maize of 12% moisture content were treated with 15 lb of the dust, bagged, and stacked in two manners with appropriate controls. The maize is sampled at monthly intervals to assess insect infestation and grain damage. The results which have been obtained are disappointing. After two months the treated grain was free of insects while the untreated grain was heavily infested, but the protection given by the dust was not evident after four months when there was little difference between the infestation of the treated and untreated grain.

(*b*) A small trial was carried out with the systemic insecticide BFPO (containing about 95 per cent bis-dimethylamino-fluorophosphine-oxine) to compare its action with Schradan (as Pestox III) when applied to cane grown in the greenhouse in drums of soil. The results showed that BFPO is less satisfactory than Pestox III against *Aphis sacchari* Zehnt. under these conditions. When applied to young cane at doses giving appreciable residual effect as well as complete kill, drying and discoloration of the tip and marginal areas of the leaf blades was pronounced. This phytotoxicity did not however seem to adversely affect subsequent growth.

7. Dispatch of Beneficial Insects Abroad

(*a*) Two consignments of *Scolia oryctophaga* Coq. consisting of 1,034 females and 165 males were sent in September-October to the Lowlands Experiment Station, Kerevat, New Britain, where they were required for trial against *Oryctes rhinoceros* L.

(b) At the request of the Directeur des Services Agricoles, Reunion Island, a number of cocoons of *Apanteles sesamiae* Cam. and adults of *Xanthopimpla stemmator* Thunb. and *X. citrina* Holmgr. were sent in November and December for use against the cane moth borers *Sesamia calamistis* Hamps. and *Proceras sacchariphagus* Boj.

(c) Cocoons of *Apanteles flavipes* Cam. and adults of *Xanthopimpla stemmator* Thunb. were sent to the Trinidad station of the Commonwealth Institute of Biological Control.

8. Miscellaneous

(*a*) Lectures in Entomology were as usual delivered at the College of Agriculture by the Entomologist.

(*b*) Publications during the year are :—

Williams, J. R. (1953)—The larvae and Pupae of some important lepidoptera. Bull, Ent. Res., *43*, pp. 691-701.

Williams, J. R. (1953)—Field rats on sugar estates and methods for their control. Rev. Agric. Maurice, *32*, pp. 56-66.

Moutia, L. A. (1953)—Considerations preliminaires sur le complexe biologique de l'araignée rouge a Maurice. Rev. Agric. Maurice, *32*, pp. 76-82.

9. Acknowledgment

The considerable number of beneficial insects imported from Trinidad, as described in Section 2, were received through the agency of the Commonwealth Institute of Biological Control. The services of this Institute are invaluable and are gratefully acknowledged.

J. R. Williams,
Entomologist.

Chemical Division

Soils from Rodrigues Island

The main line of research during the year under review was an investigation of the mechanical and chemical composition of soils of Rodrigues island. Analytical figures are given in table I. From the figures obtained it can be stated that the organic matter content is generally low compared to that of Mauritius soils : the rather low C/N ratio indicates that micro organisms are fairly active in destroying organic matter in spite of the low nitrogen content of these soils.

Rodrigues soils seem to have a lower phosphate fixing capacity than Mauritius soils, and the low P_2O_5 content (soluble in concentrated HCl) of certain top soils indicates that a certain amount of erosion has occurred.

With regard to the K_2O status the figures are on the whole satisfactory, as the exchangeable K_2O is in general higher than those of Mauritius.

The soil reaction shows an average pH of 5.5 which is ideal for most crops.

Phosphatic Guano from Rodrigues Island

A series of analyses were performed in order to determine the value of the phosphatic guano found in Rodrigues Island.

The P_2O_5 contents of samples collected at various depths from various deposits were as follows :—

Locality	Depths								
	5"	6"	7"	8"	9"	10"	12"	15"	18"
Flat Island	23.01	—	—	21.64	22.04	—	19.05	22·32	—
Pintade	—	—	—	—	—	—	—	4.15	1.44
Plaine Corail	—	9.96	—	6,70	—	—	—	—	—
Paille en Queue Island ...	20.15	7.29	5.26	—	—	3.46	4.37	—	—
Catherine island	—	—	—	—	7.98	13.58	11.40	—	—
Destinee island	—	—	—	7.80	—	7.39	12·66	—	—
Gombrani island	—	—	—	11.68	—	—	7.56	—	—

Phosphatic Guano from Juan de Nova Island

An average sample collected from the above deposits gives 28.51% of P_2O_5, the P_2O_5 soluble in 2% nitric acid being 18.15%.

Aloe Fibre

At the request of the Manager of the Sack Factory the moisture content and the ether extract were determined on samples of aloe fibre collected at different stages of the manufacturing process :—

	Moisture % dry fibre	Ether extract % original	Ether extract % on dry fibre
Fibre before softener	12·7	2·8	11·2
Fibre after softener	27·0	24·1	26·5
Fibre after finisher	15·4	11·7	18·0
Weft yarn	14·3	9·0	15·7
Warp	13·9	5·1	15·2

Ensilage

In order to determine the value of the product obtained from the ensilage of cane tops, two samples forwarded by the Agricultural Division were analysed. The results were as follows :—

	A	B
Moisture	80 %	80·7 % (figures on D.M.)
Ash	8.18%	9.72%
Total protein	5.65	7.43
Crude fibre	33.86	33.22
Ether Extract	1.60	1.43
Carbohydrate	50.71	48.20
Volatile organic acids (expressed as acetic acid)	0.35	0.26
Non Volatile organic acids (expressed as Lactic acid) ...	7.15	6.67
Amino acids (expressed as Crude Proteins)	0.90	1.45
Volatile bases (expressed as Crude Proteins)	0.14	0.38
True proteins	4.88	4.43

It is interesting to compare the above figures with those published in the Annual Reports of the Department of Agriculture of the years 1936, 1938 and 1945 respectively.

Vetyver Oil

Distillations of vetyver root were performed on samples collected at Palmar Cattle Breeding Centre, from plants growing on the sandy soils of the station. The amounts of oil were low, but not negligible ; further experiments are contemplated.

Water Analysis

The following analytical figures show the average chemical composition of the water collected from rivers in Mauritius. They may be compared with those of spring water, situated in the northern district and the water supplied by the Nicolière Reservoir (figures published in the Annual Report of 1947).

	A	*B*	*C*
Total solids p.p.m.	80. 4	126. 6	97. 0
Total hardness p.p.m.	37.06	43. 6	34.88
Permanent hardness p.p.m.	45. 0	55. 0	50. 0
Total hardness p.p.m.	82.06	98. 6	84.88
Chlorine p.p.m.	12.42	12.42	10.65
Sulphate p.p.m.	Nil	Nil	Nil
CaO p.p.m.	15.12	16.52	16.18
NgO p.p.m.	6.66	7.02	7.25

Moisture Content of Midland Soils

At the request of the Director of Public Works, and in connection with the design of the Midlands dam, ninety five (95) samples of soils were examined in order to determine the moisture content of samples taken at weekly intervals. The following results were obtained :—

	Air dried	*Oven dried*
Highest figure	47·41	15·38
Lowest figure	18·35	2·76

Boiler Scales

It is worth recording the variations in the chemical composition of scales. It will be noted that the scales from the boiler tubes are made up primarily of silica and calcium oxide, although appreciable amounts of iron and aluminium oxides and magnesium salts are present. In the desuperheater scale the predominant constituents are silica and magnesium oxide. The ash content of both scales is of the same value whereas the organic matter content of the boiler tubes scale is much higher than that of the desuperheater scale :—

	Springfield Boiler Tubes	*Boiler Desuperheater*
	%	%
Moisture	4·77	14·24
Ash	77·14	77·29
Organic matter	18·09	8·47
Composition of ash :—		
Silica	42 32	46·67
Iron and Al. oxides ...	6·52	9·08
CaO	28·31	5·11
MgO	7·53	37·05
P_2O_5	0.26	0·41
Sulphates as SO_3	2.15	0·12

Hecogenine

A sample of extract obtained from the "juice" of *Furcræa gigantea* has been forwarded to Dr R. K. Callow of the National Institute for Medical Research through the Director of Medical Services in order to find if the presence of hecogenine can be detected.

Milk

The analysis of samples of milk from the Government Dairy was performed as usual in the months of January, May, July and October. The average figures, given below, are quite in keeping with those of previous years :—

	Fat	*Solids not Fat*
	%	%
Morning	3·6	8.62
Evening	4.8	8.68

Hydnocarpus Oil

Hydnocarpus oil, extracted from all the seeds available, has been delivered to the Leper Hospital. 1½ litres were supplied during the year.

Routine Analysis

Five hundred and sixty nine samples were received involving 1,041 determinations. The research work included the analysis of 25 samples, 233 estimations being carried out.

Staff

The Chemist acted as Principal of the College of Agriculture during the absence on leave of Mr J. R. Lagesse. Until the month of April he was in charge of the control of fertilizer distribution and during the whole year acted as Chairman of the Sugar Industry Rehabilitation Fund.

The Assistant Chemist left for Europe on leave on 26th July, 1953.

With the permission of the Principal, College of Agriculture, Mr R. Burrenchobay, formerly Scientific Assistant, was put in charge of many chemical investigations mentioned above. I wish to record my deep appreciation of the work performed by him for the Division.

R. Lincoln,
Chemist.

Soils from Rodrigues

Mechanical Analysis

	Malgache Bay (Lot 150)		*Malgache Bay (Lot 164)*		*Malgache Bay (Lot 160)*		*Oyster Bay (Freddy)*		*Oyster Bay (Davidson)*	
	Soil	*Sub-soil*	*Soil*	*Sub-soil*	*Soil*	*Sub-soil*	*Soil*	*Sub-soil*	*Soil*	*Sub-soil*
Stones and Gravel	17·0	22·4	6·8	2·4	8·6	0·5	9·1	12·0	11·3	7·7
Coarse sand ...	8·8	7·8	2·5	0·8	4·4	1·6	3·9	2·3	6·2	2·5
Fine Sand ...	14·5	13·5	14·9	9·1	14·9	11·1	14·9	13·8	11·1	10·0
Silt	21·0	18·2	25·8	23·8	29·0	21·2	22·3	20·5	27·8	24·2
Clay	45·7	62·9	55·1	65·3	45·9	62·6	51·6	61·0	51·4	59·9
Organic matter ...	6·3	2·1	3·6	2·2	3·8	2 0	4·0	2·2	4·0	2·1
Loss by solution..	4·8	1·5	1·5	1·2	1·5	1·0	1·0	1·0	1·1	1·0

Mechanical Analysis

	St. Gabriel		*Oyster Bay (Leased Land)*		*Oyster Bay Expt. Station Plot (F)*	
	Soil 8″	*Sub soil 12″*	*Soil 4″*	*Sub soil 7″*	*Soil 6″*	*Sub soil 10″*
Stones and Gravel ...	2·3	—	7·2	38·7	31·1	10·0
Fine sand	20·3	3·9	19·2	23·9	13·3	12·2
Silt	30·3	17·2	28·5	31·6	21·9	22·3
Clay	42·0	74·2	47·0	38·2	56·7	62·3
Organic matter	3·5	2·2	3·6	2·7	2·6	1·4
Loss in solution	1·9	1·4	1·4	1·2	1·4	1·2
Coarse sand	1·9	1 0	3·2	4·1	6·6	3·5

Chemical Analysis

Combined water	12·0	12·9	11·0	10·5	10·1	11·3
Organic carbon	2·00	1.27	2·10	1·54	1·52	0·80
Nitrogen	0·18	0·12	0·24	0·16	0·17	0·10
C/N ratio	11·1	10·6	8·8	9·6	9·0	8·0
P_2O_5 soluble in strong HCl	0·20	0·15	0·16	0·16	0·16	0·10
K_2O do.	0·125	0·113	0·199	0·151	0·133	0·080
P_2O_5 by Truog's method...	0·005	0·0023	0·0045	0·0029	0·0084	0·0035
Exchangeable K_2O ...	0·048	0·015	0·082	0·069	0·045	0·035
pH	6·4	6·0	6·5	6·7	6·8	6·8

Soils from Rodrigues

Chemical Analysis

	Malgache Bay (Lot 150)		*Malgache Bay (Lot 164)*		*Malgache Bay (Lot 160)*		*Oyster Bay Freddy*		*Oyster Bay Davidson*	
	Soil	*Sub-soil*	*Soil*	*Sub-soil*	*Soil*	*Sub-soil*	*Soil*	*Sub-soil*	*Soil*	*Sub-soil*
Combined water	8·5	9·4	10·4	11·2	9·6	10·4	9·9	10·1	9·4	9·3
Organic carbon	3·70	1·24	2·11	1·27	2·22	1·17	2·35	1·28	2 35	1 21
Nitrogen	0·62	0·151	0·216	0·118	0·211	0·099	0·265	0·135	0·281	0 098
C/N ratio	6 : 1	8·2 : 1	9·7 : 1	10·8 : 1	10·5 : 1	11·8 : 1	8·9 : 1	9·5 : 1	8·4 : 1	12·4 : 1
P_2O_5 soluble in conc. HCL ...	1·31	0·14	0·129	0·07	·054	0·129	0·495	0·343	0·108	0·147
K_2O soluble in conc. HCL ...	0·412	0·414	0·080	0·076	0·05	0·034	0·106	0·103	0·073	0·033
P_2O_5 (Trnog, ...	0·214	0·0663	0·0077	0·0047	0·0048	0·004I	0·0I0I	0·0091	0·0073	0·0073
pH	7·0	6·8	6·4	6·4	6·4	6·0	6·0	6·0	6·6	6·6

Soils from Rodrigues

Mechanical Analysis

	La Ferme		*Bois Noir Malgache*		*Nouvelle Decouverte*
	Topsoil	*Subsoil*	*Topsoil*	*Subsoil*	*(4–5")*
Stones and Gravel ...	1·0	0·5	1·0	3·4	5·1
Coarse sand	1·1	0·9	2·8	2·1	2·0
Fine sand	16·1	12·7	20·1	19·4	28·4
Silt	13·4	15·7	23·1	26·8	21·2
Clay	68·1	72·4	51·0	52·0	40·0
Organic matter	3·2	1·2	3·7	2·9	5·7
Loss in solution	1·0	0·9	2·3	2·2	3·4

Chemical Analysis

Combined water	11·40	11·80	11·80	11·80	10·50
Organic carbon	1·87	0·68	2·17	1·68	3·29
Nitrogen	0·19	0·085	0·18	0·17	0·28
C/N ratio	9·80	8·00	12·10	9·90	11·80
P_2O_5 soluble in cond. HCl.	0·20	0·18	0·15	0·14	0·44
K_2O do. ...	0·096	0·065	0·13	0·11	0·19
P_2O_5 (by Truog's method)	0·0020	0·0013	0·0031	0·0011	0·0082
Exchangeable K_2O ...	0·035	Nil	0·028	Nil	0·055
pH	6·40	6·80	6·00	6·20	6·30

Engineering Division

Visits to Factories

The twenty-seven factories and nine distilleries were visited during the year. Advice was given when sought for and routine analytical work carried out for the factories and distilleries.

Factory Data

Final figures were received from the twenty seven factories which operated during the crop ; the highest production by one factory was 39,665 metric tons, the lowest 7,947 metric tons, and the average 18,967 metric tons Other results are shown in Table I.

Investigations

(*a*) *The Filterability of Mauritius raw sugars.*—During the crop a study was made of the filterability of our raw sugars in relation to the quality of cane juice and manufacturing techniques.

Sugar samples were collected from all factories and analysed by the Elliot method once a week. When the sugars showed low filtration rates, the factories producing these sugars were visited and recommendations were made for the improvement of the filterability. Among these recommendations were the following : the use of sugar sieves, efficient centrifugalling at the fore workers where a sugar having a purity greater than 85 should be obtained, double purging of last masse-cuite ; at the filter station it was recommended not to wash the muds too much so as to obtain a cake with low sugar content but to aim at a minimum fall in purity between filter and defecated juices.

As regards clarification which is one of the main factors leading to bad filterability, it was recommended that the residual P_2O_5 content of defecated juices should be around 20mg per litre whilst the increase in CaO + MgO content between mixed and defecated juices should be more than 200 mg CaO + MgO per litre. Generally these conditions correspond to a pH of about 7·0 but in some cases the corresponding pH may be as low as 6·4 in which case, to prevent inversion, soda ash should be added to the defecated juice. In cases where the P_2O_5 content of the juice is low, clarification is inevitably poor and addition of P_2O_5 to the green juice must be resorted to. This fact was proved during the work carried out at one of our sugar factories where the original P_2O_5 of the juice was low. Addition of P_2O_5 gave a great improvement in the appearance of the clarified juice as well as in the filtration rates.

A separate paper has been published on this subject.

(*b*) *Performance of the Escher Wyss Continuous Centrifugal.*—At the request of the Manager of St. Antoine S.E. and the representatives of the Escher Wyss Co. in Mauritius, the performance of this machine was determined and compared with that of the Watson Laidlow centrifugal of the vertical type.

The two machines were fed by the same masse-cuite A, and the runnings obtained by each type of machine, as well as the sugar produced, were analysed. It was found that considerable re-solution of sugar crystals occurred in the case of the Escher Wyss centrifugal as a lower purity drop between masse cuite and runnings was obtained. This re-solution when converted into sugar amounted to about 35 kgs more sugar per ton of masse-cuite passing through the screen to enrich the runnings in the case of the Escher Wyss centrifugal than in the case of the Watson Laidlow centrifugal.

It was also noticed in the case of the Escher Wyss Centrifugal that a certain amount of crushing of the crystals occurred during the process of centrifugalling as well as caking of this crushed sugar in the form of large lumps. The amount of lumps produced per ton of commercial sugar was determined and was found to average about 1%. When the various sugars obtained were subjected to dermination of grain size it was found that the sugar from the Escher Wyss centrifugal contained a larger amount of small crystals : this is an important factor as regards the refining qualities of raw sugar. It was also found experimentally that the moisture content of the Escher Wyss sugar was high and therefore it would probably be necessary to have a sugar dryer when using this type of centrifugal.

Experiments were also carried out to determine the effect of the temperature of masse-cuites on the work of the centrifugal. It was found that the Escher Wyss centrifugal could not work efficiently with cold masse-cuites. The purity drop between masse-cuites and runnings was 12·2 at 42° C, as against 17·8 at 58° C and 14·1 at 62° C.

To conclude, the results of the tests made showed that the performance of the Escher Wyss centrifugal was inferior to that of the Watson Laidlow centrifugal of the old vertical type. However, the mechanical advantages of that machine are considerable and if it is improved by changes in design the technological disadvantages enumerated above might be lessened to such an extent that the machine would find general use in cane sugar factories.

A separate paper has been published on this subject.

Alcohol

The export of alcohol was subject to many fluctuations during the year and ceased completely in November. Only 5 distilleries were in production. 2,118,522 litres of 94° G.L, alcohol were exported to the United Kingdom.

Routine work on alcohol was continued. One hundred and forty-four samples were analysed and graded.

Complete analyses were made on some samples of Reunion rum and rum produced in Reunion from a consignment of Mauritius molasses.

Lime Industry

A complete survey of the present position of the lime industry and of possible future developments were made. All the 62 lime kilns now in operation in the island were visited. The annual production of the industry is about 10,000 tons of which about half is used in the sugar manufacture and half in the building trade,

A special study was made of present equipment and manufacturing methods used ; the modifications necessary in order to mechanise the industry and lower the production costs were suggested. The possible use of coral sand in rotary kilns and of the quarrying of calcareous rocks for use in vertical kilns were also considered.

Fibre

Decortication tests were made on most of the types of decorticators in use in the Colony. The tests were performed on 100 kg of leaves and the residue carefully collected washed, dried, and all fibre handpicked. The scraped fibre was treated in the usual manner. Table I shows a summary of average results obtained.

With the help of the Hemp Producers' Syndicate an attempt was made to obtain the production cost of fibre from each factory and circulars have been sent to each owner accordingly.

Hardening of Raspador Blades

Angle iron blades hardened by heat treatment at 900°C and fitted to a raspador at *La Chaumière* gave 8 months continuous service before they had to be reset. Examination revealed a marked difference in the erosion of the blades suggesting a lack of uniformity in heat treatment. With better heating equipment much better results could be expected.

Experimental Fibre Decortication Station

An experimental fibre decortication plant has been set up at Richelieu. An automatic Humbert decorticator and 4 retting ponds are already in use and an automatic raspador and a brushing machine are being erected. Its object is to enable experiments on a commercial and industrial scale to be carried out.

The automatic Humbert decorticator is fitted with a 2–jaw reciprocating feeding device which revolves at 12 r.p.m. Output is good and no skilled labour is required but an undecorticated butt of 3 to 5 inches is left.

Kenaf and Roselle

Kenaf and Roselle stalks harvested from experimental plots planted by the Agricultural Division at Richelieu were retted for 15 days in artificial ponds, when the fibre was hand cleaned, washed and dried. These plants were planted at different periods but were harvested about the same time. The fibre content of Kenaf stalks ranged from 4.6% to 6.5% and that of Roselle from 5 to 6.2%.

Retting Tests

The first experiments on the retting of aloe fibre gave interesting results. The action of synthetic detergents in the retting medium was compared with that of soap, the standard substance so far used in Mauritius. Shell Dromus oil B was found to give the best results, the optimum dose being 7 of oil to 1,000 of dry fibre by weight, Teepol was found to be too expensive and not very effective.

Fibre Distribution of aloe plants

Decortication tests carried out on leaves from different parts of aloe plants except on the 10 central leaves showed that the percentage of fibre varies from 4.5% for the mature base leaves to 3.2% for the less mature leaves.

New Decorticators

The year has seen a renewed activity in the search for an efficient automatic decorticator but so far the ideal machine has still to be built.

The d'Unienville decorticator at La Mivoie is giving good service. Decortication and output are good, skilled labour eliminated but a 2" undecorticated butt is still left and when brushed the amount of tow produced seems excessive. The new Souchon decorticator erected at Soreze comprises a butt scraper. Industrial loss of fibre is not excessive but an appreciable amount of pulp is still present in the unbrushed fibre and water injection is necessary. The new version of the Humbert decorticator also comprises a butt scraper as well as an automatic wheel and rope leaf feeder. This machine is expected to be running shortly. The Kœnig decorticator is a modified form of raspador fitted with a new chain leaf feeder. Final adjustments are being made on this machine at Grand River North West.

Manufacture of animal feeding stuffs

The manufacture of animal concentrate was carried on at Richelieu Maize Mill and production amounted to 340 tons. The following materials were used :—maize, groundnut cake, cottonseed cake, poonac, wheat, bran, molascuit, dholl and flour sweepings.

A Porteus cubing and pelletting machine has been erected. This machine which is designed to manufacture 2 tons of cubes per hour or poultry pellets is expected to be in production very shortly.

Yeast Tablets

The Manesty pelletting machine worked round the clock to meet the demands for yeast tablets. These are made from imported South African yeast powder to which a suitable binder is added. 28,220,500 tablets were made during the year of which 27,519,500 were issued to various Government departments and 344,000 sold to the Public.

TABLE I

Type of decorticator	*% of aloe fibre lost in residue*	*% of fibre lost in butts*	*% of fibre lost as tow*	*% of pulp in unbrushed fibre*	*Estimated out-put of fibre/week*	*Labour employed*
Hand raspador	3	—	1	9	0·6	2 skilled and 2 unskilled
d'Unienville	1	5	17	7	1·0	6 unskilled
Automatic Raspador	5	3·2	0·3	9	0·8	5 unskilled
Souchon with butt scraper ...	1	6·5	3·5	14	1·3	4 unskilled

Richelieu Maize Mill

STATEMENT OF MAIZE PROCESSED DURING THE FINANCIAL YEAR ENDING 30.6.53

	Kilos	*Kilos*
Receiving Department :—		
Stock on 1st July, 1952	Nil	—
Purchases	72,107	—
To drying department		71,582
To dry maize store		525
	72,107	72,107
Drying Department :—		
From receiving department	71,582	
To dry maize store		66,366
Loss through evaporation		5,216
	71,582	71,582
Dry Maize Store :—		
Stock on 1st July, 1952	Nil	
Recovered from dryers	900	
From receiving department	525	
From drying department	66,366	
To milling department		62,086
Balance on 30th June, 1953 (dry maize) ...		5,705
	67,791	67,791
Milling department :—		
From dry maize store	62,086	
To flour store		61,085
Industrial loss		1,001
	62,086	62,086

GROUND MAIZE STORE

	Bran	*Flour*		*Bran*	*Flour*
Stock on 1st July 1952...	—	1,520	To mixing dept. (Ani. Feed. Stuff)	—	14,875
From milling dept. ...	—	61,085	To molascuit dept. ...	—	300
			Stack loss	—	005
			Balance on 30th June 1933	—	47,425
		62,605		—	62,605

Drying of Maize ... ... 1,325 kgs for Labourdonnais Sugar Estate

Statement of Animal Feeding Stuff processed during the financial year ending 30th June 1953 :—

Receiving Department :—	*Kilos*	*Kilos*	*Kilos*
Stock on 1st July 1952:—			
Beans	38,345		
Poonac	106,200		
Molassses	983		
Bagassilo	11,498		
Groundnut cake	5,543		
Oat	2,006		
Wheat bran	1,150	165,725	
Purchases :—			
Beans	1,500		
Poonac	2,200		
Molasses	57,505		
Bagassilo	27,177		
Groundnut cakes	90,334		
Wheat Bran	390,010		
Cotton seed cakes	145,645		
Flour sweeping	5,805	720,176	
To Milling Department :—			
Beans	38,090		
Poonac	107,850		
Groundnut cakes	38,840		
Cotton seed cakes	78,585		263,365
Stack loss :—			
Beans	1,755		
Cotton seed cakes	985		2,740
To Mixing Department :—			
Wheat bran	116,650		
Flour sweeping	3,450		
Oats	2,000		122,100
Stack loss :—			
Flour sweeping	10		
Oats	6		16
To Molascuit Mixing Department :—			
Molasses	32,325		
Bagassilo	8,150		
Stack loss (Bagassilo)	11,498		51,973
To sales :—			
Poonac	550		
Molasses	2,855		3,405
To balance stock on 30th June 1953 :—			
Molasses	23,308		
Bagassilo	19,027		
Groundnut cakes	57,037		
Wheat bran	274,510		
Cotton seed cakes	66,075		
Flour sweeping	2,345		442,302
		885,901	885,901

	Kilos	Kilos	Kilos
Milling Department :—			
From Receiving Department :—			
Beans	38,090		
Poonac	107,850		
Grouednut cakes	38,840		
Cotton seed cakes	78,585	263,365	
To Flour Stores :—			
Beans	37,320		
Poonac	107,830		
Groundnut cakes	38,425		
Cotton seed cakes	77,900		261,475
Industrial loss	—		1,890
		263,365	263,365
Molascuit Mixing Department :—			
From Receiving Department :—	32325		
Molasses	32,325		
Wheat bran	8,475		
Maize flour	300		
Bagassillo	8,150	49.250	
To Molascuit Department :—			
Molascuit and brancuit recovered ...	—		49,250
		49,250	49,250
Molascuit Department :—			
From molascuit mixing department :—			
Molascuit and brancuit	49,250		
Balance stock on 1st July, 1952 ...	300	49,550	
To mixing departmeni	—		46,850
Balance stock on 30th June, 1953 ...	—		2,700
		49,550	49,550
Flour store :—			
Stock on 1st July, 1952 :—			
Beans	2,510		
Poonac	244		
Groundnut cakes	670		
Dholl	10	3,434	
From Milling Department :—			
Beans	37,320		
Poonac	107,830		
Groundnut cakes	38,425		
Cotton seed cakes	77,900	261,475	
To Mixing Department :—			
Beans	35,200		
Poonac	74,000		
Groundnut cakes	17,600		
Cotton seed cakes	49,850		176,650
Stack loss :—			
Dholl...	—		10
Damaged by water :—			
Poonac	200		
Groundnut cakes	50		250
Sales :—			
Poonac	13,550		
Groundnut cakes	16,500		30,050
Balance stock on 30th June 1953 :—			
Beans	4,630		
Poonac	20,324		
Groundnut cakes	4,945		
Cotton seed cakes	28,050		57,949
		264,909	264,909

Mixing Department : -			
Maize flour	14.875		
From receiving Department :—			
Oats flour	2,000		
Flour sweeping	3,450		
Wheat bran	108,175	128,500	
From Flour store	176,650		
From Molascuit dept.	46,850	223,500	
To animal feed. stuff dept. ...			351,919.5
Industrial loss			80.5
		352,000	352,000
Animal Feeding Stuff Department :—			
Stock on 1st July, 1952	2,050		
From mixing department	351,919.5	353,969.5	
To Sales	351,319.5		
Stock on 30th June, 1953	2,650		353,969.5
TOTAL		353,969.5	353,969.5

RICHELIEU MAIZE MILL

Manufacturing account of Animal Feeding Stuff for the year ending 30.6.1953

	*Rs. c.		Rs. c.
To stock on 1st July, 1952	48,209 67	By stock on 30.6.53 ..	230,814 81
To purchases	283,149 75	By cost of production transferred to	
To wages and war bonus	18,473 14	Trading account ...	120,842 64(*a*)
To Transport (inwards)	290 00		
To Electricity	1,194 98		
To coal	125 00		
To aloe thread	214 91		
TOTAL ...	351,657 45	(£26,374.7/-)	351,657 45

Trading account as at 30th June 1953

	*Rs c.		Rs c.
To cost of production from Manufacturing account	120,842 64(*a*)	By sales to particulars..	131,423 89
To gross profit transferred to Profit and Loss account	49,299 20(*b*)	By sales to Government departments ...	38,717 95
TOTAL ...	170,141 84	(£ 12,760.13/—)	170,141 84

Profit and Loss account as at 30th June 1953

	Rs c.		Rs c.
To stores	248 81	By gross profit from	
To refund on contract tickets... ...	113 00	Trading account ...	49,299 20(*b*)
To Travelling	121 10	By transport by lorry...	801 00
To timber (eucalyptus poles) ...	114 99	By refund on bonus ...	39 71
To motor spirit	446 04	By refund on salary ...	949 50
To railway	2,037 53		
To general expenses	1,279 23		
To salary	949 50		
To insurance...	417 64		
To depreciation of lorry (1/5 of Rs 11,134 39)	2,226 88		
To salaries of staff ... 9,934 00			
To allowance 1,855 00			
To net profit c/f ... (*c*)31,345 69			
	43,134 69		
TOTAL ...	51,089 41	(£ 3,831.15/—)	51,089 41

*1 Rupee = 1/6d.
(*a*) £9,063/3sh.
(*b*) £ 3,697.10/—
(*c*) £ 2,350,19/—

Balance Sheet of "Animal Feeding Stuff" department as at 30th June 1953

LIABILITIES	*Rs c.	Rs c.	ASSETS	*Rs c.
Capital	13,656 30(*b*)		Stock of commodities...	230,814 81
Add profit of 1951–52 ..	43,235 31(*a*)	56,891 61	Aloe thread	290 00
Accountant General (Advance) ...		188,563 79	Coal	630 00
Salaries	9,934 00		Stores	890 00
Allowance	1,855 00		Lorry ... 11,134 39	
Net profit	31,345 69(*c*)		*Less* depreciation.. 2,226 88	
		43,134 69		8,907 51
			Cubing and pelleting machine	47,057 77(*d*)
TOTAL ...		288,590 09	(£ 21,644.5/—)	288,590 09

RICHELIEU MAIZE MILL

Manufacturing account of Yeast Factory for the year ended 30th June, 1953

	*Rs c.		*Rs c.
To cost of Jamaican Powder ...	30,373 57	By cost of production transferred to trading account	50,587 92(*e*)
To cost of flour	268 46		
To cost of molasses	24 25		
To wages and war bonus	18,682 13		
To electricity	699 70		
To coal	539 81		
TOTAL ...	50,587 92	(£ 3,794.2/—)	50,587 92

Trading account as at 30th June, 1953

	*Rs c.		*Rs c.
To cost of Production from Manufacturing Account	50,587 92(*e*)	By sales to particulars...	1,652 50
To stock of yeast tablets on 1st July, 1952	15,987 00	By sales to government departments ...	128,795 00
To gross profit transferred to Profit and Loss account	71,839 58(*f*)	By stock of yeast tablets on 30th June, 1953 ...	7,967 00
TOTAL ...	138,414 50	(£ 10,381.1/—)	138,414 50

Profit and Loss account as at 30th June, 1953

	*Rs c.		*Rs c.
To refund on contract tickets ...	89 75	By gross profit from trading account ...	71,839 58 (*f*)
To Insurance	31 32	By refund on bonus ...	14 89
To railway	127 89		
To stores	3,286 00		
To planks, timber, etc.	2,415 00		
To general expenses	225 41		
To Crown Agents	5,719 36		
To salaries ... Rs 1,589 00			
To allowances ... Rs 297 00			
To net profit ... Rs 58,073 74(*g*)			
	59,959 74		
TOTAL ...	71,854 47	(£ 5,389.1/—)	71,854 47

*1 Rupee — 1/6d
(*a*) £ 3,242.14/—
(*b*) £ 1,024.4—
(*c*) £ 2,350.19/—
(*d*) £ 3,529.7/—
(*e*) £ 3,794.2/—
(*f*) £ 5,388.
(*g*) £ 4,355.11/—

Trading account of "Processing of Groundnuts" for the year ending 30th June, 1953

	*Rs c.		*Rs c.
To wages and war bonus	7,709 94	By amount claimed for processing of groundnuts	10,124 27
To electricity	570 90		
To gross profit transferred to Profit and Loss account	1,843 43(*a*)		
TOTAL ...	10,124 27	(£ 759.6/—)	10,124 27

Profit and Loss Account as at 30th June, 1953

	* Rs c.		*Rs c.
To refund on contract tickets ...	54 00	By gross profit from Trading Account ...	1,843 43(*c*)
To stores	400 00		
To salaries 662 00		By refund on bonus ...	21 97
To allowance 124 00			
To net profit c/f ... 625 40(*b*)			
	1,411 40		
	1,865 40	(£ 139.19/—) TOTAL ...	1,865 40

Statement of Groundnuts processed during financial year ended 30.6.53

Receiving Department :—		
Stock on 1st July 1952	35,472	
Fram Granary	81,233	
From planters	746	
From seeds department	1,294	
To shellers		118,745
	118,745	118,745
Shelling Department :—		
From receiving department	118,745	
To shelled nuts department		82,282
To shells		36.463
	118,745	118,745
Nuts Department :—		
Stock on 1st July, 1952	314	
From shelling department	82,382	
To dryers		500
To Innova Ltd.		82,096
	82,596	82,596
Nuts Drying Department :—		
From nuts department	500	
To dried nuts department		484
Loss through evaporation...		16
	500	500
Dried Nuts Department :—		
Stock on 1st July, 1952	9,152	
From nuts drying department	484	
To Innova Ltd.		9,636
	9,636	9,636

*1 Rupee = 1/6d.
(*a*) £ 138.6/—
(*b*) £ 46–19/ --
(*c*) £138– 6/—

Seeds Department :—

Stock on 1st July, 1952	2,404	
To receiving department		1,294
To sales		515
Stock loss		595
	2,404	2,404

S. STAUB,
Sugar Technologist.

Legislation

The following Ordinances, Proclamations and Government Notices were issued during the year :—

Ordinances :—

No. 3—To provide for the setting up of a Board of Agriculture, Fisheries and Natural Resources.

No. 4—To amend the Tobacco Production and Marketing Ordinance.

No. 9—To establish a Sugar Industry Research Institute.

No. 35—To amend the sale of Canes (Control) Ordinance.

Proclamations :—

No. 11—To notify the cess to be levied on tea manufactured in the Colony during the year 1953.

No. 12—To amend the Sugarcane Plantations (Control) Ordinance, 1945.

No. 15—To prohibit the exportation of Maize from Mauritius to Rodrigues and any of the lesser dependencies of Mauritius,

No. 22—To prohibit the importation into Mauritius of the Tomato plant from Reunion and Madagascar.

No. 23—To revoke proclamation No. 7 of 1952, prohibiting the importation of maize from certain parts of Africa.

No. 26—To fix the date of the coming into force of the Mauritius Sugar Industry Research Institute Ordinance, 1953.

No. 31—To proclaim the rate of the duty leviable under the Central Board (Costs of Administration) Ordinance 1951, on the sugars of the 1952 crop exported from the Colony.

No. 35—To fix the date of the coming into operation of the Board of Agriculture, Fisheries and Natural Resources Ordinance 1953.

Government Notices :—

No. 63—To amend the Tea Control Ordinance, 1949.

No. 176—To amend the Animal Diseases Regulations.

4847/11/54—1,000